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HEARING ROOM AVAILABLE
ST. PAUL, MINNESOTA

October 23, 1982

Mr. Edward J. Schwartzbauer
Attorney at Law
Dorsey & Whitney
2200 First Bank Place
Minneapolis, Minnesota 55402

Re: U.S. vs. Reilly Tar & Chemical Corporation

Dear Ed:

Enclosed please find the Reading and Signing
Certificates of the depositions of Leshar, Justin & Hennessy
concerning the above-entitled matter.

Would you please have the deponents complete the
Certificates according to the instructions thereon and return
all copies to me for proper distribution.

If I have not received the Certificates within thirty
(30) days of the date of this letter, I will file the Originals
of the depositions with the Clerk of Court in which this case
is venued.

Thank you for your cooperation.

Sincerely,

Kirby

Kirby A. Kennedy
KIRBY A. KENNEDY & ASSOCIATES

cc: Mr. Dennis Coyne
Mr. David Hird
Mr. Allen Hinderaker
Mr. Robert Leininger ✓

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1 UNITED STATES DISTRICT COURT

2 DISTRICT OF MINNESOTA

3 FOURTH DIVISION

4 -----
United States of America,

5 Plaintiff,

6 and

State of Minnesota, by its
Attorney General Warren Spannaus,

7 its Department of Health, and
its Pollution Control Agency,

8 Plaintiff-Intervenor,

vs.

9 Reilly Tar & Chemical Corporation;
Housing and Redevelopment authority
of Saint Louis Park; Oak Park

10 Village Associates; Rustic Oaks

11 Condominium Incorporated; and

Philip's Investment Company,

12 Defendants.

and

13 City of Saint Louis Park,

Plaintiff-Intervenor,

14 vs.

Reilly Tar and Chemical Corporation,

15 Defendant.

and

16 City of Hopkins,

Plaintiff-Intervenor,

17 vs.

Reilly Tar & Chemical Corporation,

18 Defendant.

19
20
21 The Deposition of Richard J. Hennessy, taken
22 pursuant to Notice of Taking Deposition, taken before
Kirby A. Kennedy, a Notary Public in and for the County
23 of Washington, State of Minnesota, taken on the 15th
day of October, 1982, at Indianapolis, Indiana,
24 commencing at approximately 3:00 o'clock p.m.
25

APPEARANCES

DAVID HIRD, ESQUIRE, United States Attorney,
Department of Justice, 10th Street and Penn Avenue,
Washington, D.C. 20530.

ROBERT E. LEININGER, ESQUIRE, Enforcement
Attorney, 230 South Dearborn Street, Chicago, Illinois
60604, appeared for and on behalf of the United States
Environmental Protection Agency, Region V, Plaintiff,
United States of America.

DENNIS M. COYNE, ESQUIRE, and STEPHEN
SHAKMAN, ESQUIRE, Special Assistant Attorneys General,
1935 West County Road B2, Roseville, Minnesota 55113,
appeared for and on behalf of Plaintiff-Intervenor,
State of Minnesota.

ALLEN HINDERAKER, ESQUIRE, of the law firm of
POPHAM, HAIK, SCHNOBRICH, KAUFMAN and DOTY, LIMITED,
4344 IDS Center, Minneapolis, Minnesota 55402,
appeared for and on behalf of Plaintiff-Intervenor,
City of Saint Louis Park.

EDWARD J. SCHWARTZBAUER, ESQUIRE, and BECKY
COMSTOCK, ESQUIRE, of the law firm of DORSEY and
WHITNEY, 2200 First Bank Place, Minneapolis, Minnesota
55402, appeared for and on behalf of Defendant Reilly
Tar and Chemical Corporation.

RICHARD J. HENNESSY

a witness in the above-entitled
matter, after having been first
duly sworn, deposes and says as follows:

BY MR. HIRD:

Q. Would you please state your name and address
for the record, please?

A. Name is Richard J. Hennessy and I live at
5816 Crinittenden here in Indianapolis.

Q. Mr. Hennessy, because of the lateness of the
hour we are likely not to go very long today but we
intend to continue the deposition in the near future as
soon as arrangements can be made. I apologize for any
inconvenience.

A. Okay.

Q. Mr. Hennessy, what is the state of your
health?

A. I would say excellent, considering my age.

Q. I would probably agree with you. Mr.
Hennessy, you are no longer an employee of Reilly Tar &
Chemical, are you?

A. I retired in 1980. My last day on the
payroll was December 31, 1980.

Q. Mr. Hennessy, are you represented today as a

1 witness by Ms. Comstock, Mr. Schwartzbauer or Mr.
2 Polack?

3 A. Yes.

4 Q. Mr. Hennessy, are you receiving a pension
5 currently from Reilly Tar & Chemical?

6 A. Yes, I am.

7 Q. Mr. Hennessy, are you a shareholder or bond
8 holder or pension holder of Reilly Tar & Chemical?

9 A. No, I am not.

10 Q. Are you participating in any profit sharing
11 program of Reilly Tar & Chemical?

12 A. No, no profit sharing.

13 Q. Mr. Hennessy, did you review any documents in
14 preparation for your testimony today?

15 A. Yes, I did.

16 Q. Were these documents provided to you by
17 Counsel?

18 A. Yes.

19 Q. Did you review any documents that were not
20 provided to you by Counsel?

21 A. Well, yes, I reviewed some that I furnished
22 when I was an employee back in 1980, you know, drawings
23 and engineering documents.

24 Q. In connection with this lawsuit?

25 A. Yes, correct.

1 Q. Did you review any documents that you did not
2 furnish back in 1980 in connection with this lawsuit or
3 which were provided by Counsel?

4 A. I reviewed documents which I did not furnish,
5 yes.

6 Q. I am sorry. Perhaps my question was not
7 clear. You have identified two groups of documents;
8 one, the documents that you prepared back in 1980 and,
9 two, the group of documents which were furnished to you
10 by Counsel?

11 A. Correct.

12 Q. I was asking whether there was a third group
13 of documents that fit into neither category which you
14 reviewed in preparation for your testimony today?

15 A. No, I think all the other documents were
16 either furnished by Counsel or came from the
17 engineering department.

18 Q. And by "came from the engineering department"
19 you mean documents that you prepared yourself in
20 connection with this case?

21 A. Well, not necessarily ones that I prepared.
22 We went through all the files and pulled out anything
23 we could find that had reference to this case and I
24 reviewed those and some of them I had nothing to do
25 with.

1 Q. But these were documents that were prepared
2 in connection with this case?

3 A. Well, they were just copies of old letters
4 and things of that nature, estimates for jobs and so
5 forth.

6 Q. Now, focusing your attention on just your
7 preparation for this deposition today.

8 A. Okay.

9 Q. I understand that Counsel furnished you with
10 some documents?

11 A. Yes.

12 Q. Were there any other documents which you may
13 have pulled out of the files at an earlier date which
14 you reviewed which were not furnished to you by Counsel?
15 If the question is not clear I will --

16 A. Well, there were. I mean, as I say, I went
17 through our files. Mr. Roder and I went through the
18 files together. He is a chemist that works at the lab
19 and we went through the files and we pulled out
20 anything that had anything at all to do with the case
21 that we could find and we bundled them up and sent them
22 downtown to Rob Polack.

23 Q. I am trying to make the question clear. I
24 think there is a misunderstanding. I understand that
25 at one period of time back in 1980 you did review those

1 documents and sent them down to Rob Polack?

2 A. That is correct.

3 Q. What I am asking now, in 1982 I understand
4 that you would have reviewed a group of documents that
5 were provided by Counsel?

6 A. That's correct.

7 Q. I was asking in 1982 did you go back and look
8 at any other documents besides those provided by
9 Counsel, including those that you may have isolated
10 back in 1980?

11 A. I can't think of any.

12 Q. I apologize for the confusion but I think
13 that clears it up. Have you brought the documents
14 which were furnished to you by Counsel today?

15 A. No, I returned them to Counsel. They are a
16 big bundle. I didn't want to be carrying them home.

17 Q. I quite understand.

18 MR. HIRD: Counsel, I am going to repeat
19 a request made by Counsel for my co-plaintiff that
20 these documents be produced. I believe that we are
21 entitled to them under Rule 612 under the Federal Rules
22 of Evidence.

23 MR. SCHWARTZBAUER: Well, I previously
24 stated our position and I will adhere to that.

25 MR. HIRD: I understand that. Can you

1 keep those documents which were furnished to Mr.
2 Hennessy in tact?

3 MR. SCHWARTZBAUER: Yes, I will.

4 MR. HIRD: Thank you.

5 BY MR. HIRD:

6 Q. Mr. Hennessy, where are you from originally?

7 A. I was born in Saint Louis, Missouri and lived
8 there until I was 16 years old.

9 Q. Where did you go to college?

10 A. Notre Dame, Southbend, Indiana.

11 Q. What did you study there?

12 A. Civil engineering.

13 Q. When did you graduate from college?

14 A. I got my degree in 1933.

15 Q. Did you undertake any post-graduate education?

16 A. No, I didn't.

17 Q. Did you go to work following getting your
18 degree?

19 A. Yes, I was lucky because in those days jobs
20 were hard to find and I found one.

21 Q. With who?

22 A. Reilly Tar and Chemical.

23 Q. I gather you spent your entire professional
24 career at Reilly?

25 A. That's correct.

1 Q. Could you describe the various stages of your
2 work career at Reilly Tar? Give us a sense of what
3 your job title was and what your responsibility were.

4 A. I started out in the engineering department
5 and I was in design and I would say I was a detail
6 engineer, what we would call a detail engineer, up
7 until maybe '44 or '45 or '46, somewhere in there. In
8 other words, they would have a project like I would
9 design a structure or I would design a support for
10 something and then you keep getting into more and more
11 design of more and more larger structures and more
12 important structures until finally I became a project
13 engineer.

14 Q. That was in '45?

15 A. Say '45 or '46, somewhere around there, '45
16 maybe. I would be in charge of a project and I would
17 then have engineers working under me on the project and
18 then in 19 -- I don't know when I was made assistant
19 chief engineer, but it must have been maybe in 1950 and
20 then I was made chief engineer in 1962.

21 Q. All this time you were based in Indianapolis?

22 A. Yes, correct.

23 Q. I am a little unclear as to the distinction
24 between a detail engineer and a project engineer.

25 A. When you get a fellow just out of college you

1 wouldn't give him a big project like if you were going
2 to build an addition to a plant, you wouldn't give him
3 that job. You would give him the job of designing some
4 part of it. Like he could design a shop building, or
5 he could design steam piping, or maybe all the power
6 piping through the plant. It would depend on what his
7 background was too, what he took in college. He could
8 design the electrical system, one part of it, one phase
9 of it.

10 Q. By a part or phase you mean a complete system?

11 A. If you had an electrical engineer he would
12 design the power wiring to the plant and maybe get into
13 instrumentation as you go along. Okay. A mechanical
14 engineer would design pressure vessels, a civil
15 engineering would too. He would design pressure
16 vessels, he would design boiler installations, he would
17 design the process piping, that type of thing.

18 Q. Were those the things that you in fact
19 designed, pressures vessels?

20 A. All of those. All of them, yes. In other
21 words, as you get along you would learn more and more.
22 For instance, I have designed power piping and I have
23 designed power wiring and process piping the whole bit.

24 Q. Turning your attention I guess first to your
25 role as a detail engineer and then as a project

1 engineer, were you responsible for any specific plants
2 in terms of any problems that would appear in those
3 plants or were you responsible on an ad hoc basis?

4 A. I was responsible for all our plants. Are
5 you talking now about which stage, when I am chief
6 engineering or detail engineer?

7 Q. Detail engineer.

8 A. Detail engineering, the project manager would
9 be given a project and he would give me -- like you
10 design this building or you design this process piping
11 or you design a pressure vessel. As I went along and
12 learned more and more how to do various things,
13 building codes, electrical codes and so forth, and he
14 would give me one part of it to design. Okay.

15 Q. My question would be would you, in your role
16 as a detail engineer, be put on say all the projects
17 involving Saint Louis Park, all the projects involving
18 Maywood, but not on the projects on Granite City?

19 A. No.

20 Q. In other words, you would have specific
21 obligations for specific plants and other people have
22 obligations for other plants?

23 A. No, our engineering department did
24 engineering, that is certain engineering we did for all
25 plants.

1 Q. So you could be assigned to a project?

2 A. Any points.

3 Q. In the beginning you could be assigned to a
4 project with any point?

5 A. Yes.

6 Q. Did you over time develop particular
7 familiarity with processes at other plants?

8 A. Yes.

9 Q. Which plants were you most closely identified
10 with?

11 A. Well, of course, the plants I was most
12 closely identified was our Indianapolis pyridine plants
13 from 1952 on and in 1960 when that really took off,
14 it took a tremendous amount of engineering time, it
15 still is I understand. It grew like mad.

16 Q. Which others would you be closely identified
17 with and done a great deal of work on over the years?

18 A. I have done a great deal of work for the
19 Cleveland plant. The ones where I did a great deal of
20 work, I would say I did a lot for the Cleveland plant,
21 a lot for the Seattle plant when it was in existence.
22 Ironton, Utah, Granite City, Illinois and Saint Louis
23 Park I did some. The plants where I did some but not
24 as much would be Saint Louis Park and Chattanooga. I
25 did a tremendous amount for Loan Star Texas, that's an

1 enamel plant, that was built in 1950. I was more or
2 less project engineer on that job.

3 Q. At the time you joined the engineering
4 department how many engineers were in the department?

5 A. I would have to stop and think. You mean
6 counting myself or not counting myself?

7 Q. Either way, whichever is more convenient.

8 A. There is one, two, three, four, five, I would
9 say six counting myself.

10 Q. Would Mr. Horner and Mr. Mitchell be among
11 those six?

12 A. Yes, Mr. Horner was the chief engineer.

13 Q. How long had Mr. Horner been with the company
14 when you joined?

15 A. I would say he joined the company about 1924,
16 that's about then. You know, I might miss it a year or
17 two but somewhere around there.

18 Q. What was Mr. Mitchell's position at that time?

19 A. Mr. Mitchell was our process engineer.

20 Q. And he had been with the company about how
21 long?

22 A. I would guess he came with the company about
23 1927 or '26 or maybe '28, somewhere. Late 20's.

24 Q. By the time you retired as chief of the
25 engineering department how many engineers were in the

1 department?

2 A. Nine. Now that doesn't include draftsmen,
3 this is engineers.

4 Q. Were there draftsmen in the department when
5 you joined back in --

6 A. No, there were none.

7 Q. When did you bring in draftsmen?

8 A. After the war. About 1945 we started hiring
9 draftsmen.

10 Q. About how many draftsmen were in the
11 department? How many draftsmen did you hire about the
12 first time you started taking draftsmen in?

13 A. Two I would say.

14 Q. And about how many did you have when you left
15 the department?

16 A. Four.

17 Q. Your testimony was that when you joined the
18 department there were six engineers and when you left
19 there were nine. Was there ever any time when there
20 were more than nine engineers in the department that
21 you can recall?

22 A. Not in the department, but things changed.
23 In other words, when we went into synthetic products
24 plants a lot of the engineering or -- well, a lot of
25 the processes were designed by Doctor Wheeler who had a

1 Ph.D.. He had a Ph.D. in chemistry and he has a
2 chemical engineer, he has a bachelors degree in chemical
3 engineering. He designed a lot of the processes or
4 oversaw the design of chemical process, let's put it
5 that way.

6 Q. But he was not in the engineering department?

7 A. No.

8 Q. He was in the chemical division?

9 A. Well, at the time I retired our company had a
10 little different -- it's kind of hard to put titles on
11 it. He was, I would say, the assistant director of
12 research, that would be the title I would give him, and
13 then from 1950 or '52 on I would say he was more or
14 less in charge of all synthetic chemicals. He was more
15 or less in charge of the process design and Mr.
16 Mitchell continued on in charge of process design for
17 the tar plants.

18 Q. To whom did the engineering department report
19 at the outset of your career with the department?

20 A. At the outset of my career they reported to
21 Mr. Reilly, Mr. P. C. Reilly.

22 Q. And what was his position at that time?

23 A. He was president and practically owner of the
24 company as far as I know.

25 Q. Did the department, throughout the time you

1 were there, continue to report to the president of the
2 company?

3 A. During the time I was there, no.

4 Q. When did you start reporting to someone in a
5 different position from your -- I think you are a
6 little confused.

7 A. Okay.

8 Q. Should I restate the question? I understand
9 that at the beginning, at the time you joined the
10 department, you reported directly to the president.

11 The chief engineer reported directly to the
12 president. He might have also reported to the
13 assistant, Mr. Edwards, but I think Mr. Reilly made the
14 final decision.

15 Q. Did the chief engineer, throughout the time
16 with your department, report directly to the president
17 recognizing that the individuals may have changed?

18 A. When I first became chief engineer I reported
19 to Mr. T. E. Reilly. I can't tell you what he was. He
20 was president at one time but what he was in 1962 when
21 I became chief engineer I can't remember what his title
22 was. He might have been a vice-president. I think Mr.
23 P. C. Reilly, Junior was president and Mr. Tom Reilly
24 was vice-president, I am not sure about the year.

25 Q. Do you recall who Mr. Horner began to report

1 to after Mr. P. C. Reilly, Senior died?

2 A. He reported to whoever was running the
3 management. And who would that be? That would be, I
4 believe, Mr. Edwards is still around. I can't remember
5 who became president of the company but he reported to
6 people like Mr. Edwards and Tom Reilly and P. C. Reilly,
7 Junior, that's who he reported to. I can't remember
8 the titles because I can't remember what year they had
9 what position.

10 Q. When Mr. Finch was deposed he referred to a
11 department which he described as the production
12 department. Are you familiar with that term?

13 A. The production department would be the --
14 well, the man in charge of production, of tar plants,
15 when he retired was Mr. Lesher and the man in charge of
16 the production of the synthetic plant was Doctor
17 Wheeler but he has since retired.

18 Q. So that it's likely that what Mr. Finch was
19 referring to by the production department is the tar
20 department?

21 A. Yes. Various people held that job over the
22 years, yes.

23 Q. If a plant manager wanted to change part of
24 his operation or install a new piece of equipment what
25 role would the engineering department play in effecting

1 that decision; in other words, would the manager have
2 to seek the engineering department's advice?

3 A. To answer that question I will have to
4 explain. It would be none, or just advice, or do the
5 job for him. Now, the engineering department played
6 the role of more or less like a consultant to the plant
7 and if they had an engineering problem they could call
8 us and we would give them advice. Sometimes that's all
9 it was. Other times, if they wanted to replace a pump
10 or something, they could do it themselves if there was
11 going to be no major change. They would buy the new
12 one and throw the old one away and put it in. They had
13 plant engineers, either plant engineers or maintenance
14 that did it. They would maintain pumps and do things
15 like that. However, if there were going to be a major
16 change, either an improvement in the plant or something
17 that that required engineering work, then we would get
18 involved.

19 Q. Did the plant engineers report to the
20 engineering department or did they just report to the
21 plant managers?

22 A. They just reported to the plant managers.

23 Q. You mentioned that certain minor activities
24 could be done by a plant manager without consulting the
25 engineering department?

1 A. That is correct, yes.

2 Q. Would there have to be any kind of
3 notification prior to their going ahead with it? In
4 other words, would they have to submit a work order to
5 someone in Indianapolis or could they just simply
6 decide to buy a new pump?

7 A. Each plant had a limit of how much they could
8 spend without getting an authorization for the
9 expenditure, that's the way the company controlled our
10 cash flow, and if it went over that they had to submit
11 a work order to the management. All work orders really
12 originated in the plants.

13 Q. Is the limit -- I am sorry, did you finish?

14 A. They would just request a work order which
15 would be a request for authorization to do the job.

16 Q. Were there different limits at different
17 plants?

18 A. Yes, there were.

19 Q. Do you recall whether Saint Louis Park
20 generally had a lower limit than the other plants or a
21 higher limit or --

22 A. Well, I am sure they would have a higher
23 limit than Chattanooga and much lower limit than
24 Indianapolis, I know that.

25 Q. Why do you say that?

1 A. Because the type of equipment involved.

2 Q. Indianapolis had much more expensive
3 equipment?

4 A. Yes.

5 Q. But Saint Louis Park had more expensive
6 equipment than Chattanooga?

7 A. Yes, more of it.

8 Q. Would you happen to recall what these limits
9 were at particular times in the first few years you
10 were there, '38 to '44?

11 A. I would just recall a ballpark figure which I
12 would say was around \$500. That's a long time ago.

13 Q. I understand. I appreciate your exercising
14 your recall. During the period that you were project
15 engineer from about '45 to '50, I believe, were your
16 approximate dates, do you recall what the --

17 A. Project engineer?

18 Q. Yes.

19 A. The limit I can't recall.

20 Q. Do you have a ballpark figure?

21 A. Oh, I would guess it didn't go up very much.
22 I would say may be \$750 but I can't remember. But
23 that's a ballpark figure I would say.

24 Q. How about when you were assistant chief
25 engineer from '50 to '62?

1 A. Probably about the same. There wasn't much
2 difference, I don't think, between '50 and '60.

3 Q. During the period that you were chief
4 engineering from the '60's until about the time that
5 the plant closed, what was your recollection of the
6 limit for the Saint Louis Park plant?

7 A. Well, for making a minor repair without
8 getting an authorization I would say it was around \$750,
9 but I don't remember.

10 Q. Would --

11 A. Unless, of course, there was an emergency.
12 Now, that -- this is something else. If there was an
13 emergency, like if there was something happened that
14 they had to fix right now they could call up and tell
15 them they were going to do it and they would let them
16 go.

17 Q. Who would they call?

18 A. They would call the finance committee.

19 Q. Well, who would constitute the finance
20 committee, as you recall?

21 A. At different times there were different
22 people. I think there was -- I think Tom Ryan, Tom
23 Reilly, P. C. Reilly.

24 Q. P. C. Reilly, Junior?

25 A. P. C. Reilly, Junior, I am sorry, yes. I

1 think McAdams was on it.

2 Q. Did this finance committee exist prior to the
3 death of Mr. P. C. Reilly, Senior?

4 A. No.

5 Q. So before then they would have called up in
6 an emergency?

7 A. They would have called him, yes.

8 Q. Would the Saint Louis Park plant have had a
9 lower or a higher limit than the Ironton plant?

10 A. I would say about the same.

11 Q. Now, assuming that a plant monitor wanted to
12 change a process or introduce a new piece of equipment
13 that would have involved an expenditure over the limit,
14 would he then be expected to contact the engineering
15 department?

16 A. If he needed engineering help on it, yes, he
17 would.

18 Q. If he did need it could he rely totally on
19 his plant engineer or would he --

20 A. Oh, yes, sure.

21 Q. So if he did need engineering help he could
22 simply rely on his plant engineer and wouldn't have to
23 call the engineer --

24 A. That's correct, yes.

25 Q. If the engineering department was called in

1 on a specific project, was it then required that the
2 engineer in your department approve the project before
3 it could go forward or could the project go forward
4 even without the engineering department to approve it?

5 A. No project of that nature could go forward
6 until it was authorized by the finance committee. By
7 "going forward" you are talking about actually buying
8 the equipment and purchasing things, no, it could not.

9 Q. But was the engineering department approval
10 required? In other words, if a plant manager --

11 A. The approval was required for a big
12 expenditure, yes, if it were a large addition or
13 something of that nature.

14 Q. So a plant manager could not go -- if he had
15 an idea that was disapproved by the engineering
16 department he could not then take it up to the finance
17 committee?

18 A. He could, yes.

19 Q. But it was unlikely?

20 A. It was very unlikely that it would go
21 anywhere but, yes, it could.

22 Q. Did the engineering department have the
23 authority to investigate engineering problems on its
24 own initiative without a request from the plant manager?

25 A. I don't know of any case where we ever did it.

1 Q. There would never be an instance where
2 something might be disturbing an engineer about a
3 plant's operation and the engineer would then call up
4 the plant or arrange for a visit in the plant to check
5 it out without first receiving a request from the plant
6 manager?

7 A. The plant manager worked for the production
8 manager and if we found something like that we would
9 immediately go to the production manager, not to be
10 going over the guys head, but that's what you do,
11 everybody has to know what is going on. So we would go
12 to the production manager and in a few telephone called
13 we would get it ironed out or start an investigation or
14 something.

15 Q. Did you do that on occasion?

16 A. I am sure we did but I can't recall the
17 specific occasions but I am sure we did.

18 Q. When --

19 A. See, the plant managers did not work for the
20 engineering department, they were in production and we
21 were not their boss, never were their boss.

22 Q. I understand that.

23 A. Yes.

24 Q. I am just trying to understand the
25 relationship in a little more detail.

1 A. Okay.

2 Q. And I appreciate your assistance in enlightening
3 me.

4 A. All right.

5 Q. When did you first visit the Saint Louis Park
6 plant?

7 A. In the early 1950s, I can't recall the exact
8 year, but it was in 1950, somewhere around '51 -- '52.

9 Q. You were never on the plant site before
10 the '50's?

11 A. No, it's the first time I ever went there.

12 Q. You had been in the engineering department
13 then over 12 years?

14 A. Correct, yes.

15 Q. Did anyone else from the engineering
16 department make visits to the Saint Louis Park plant
17 during those first 12 years?

18 A. I don't recall much going on in Saint Louis
19 Park before 1950 but I believe Mr. Horner made -- I
20 would say he probably made at least one or two trips in
21 that time to Saint Louis Park but I can't recall why.

22 Q. What about Mr. Mitchell?

23 A. I am sure Mr. Mitchell did too, yes.

24 Q. After you first visited the Saint Louis Park
25 plant in 1950, or approximately 1950, how frequently

1 did you go there thereafter?

2 A. I would say I went there -- how many times.

3 Q. Say --

4 A. I would say 10 times during that decade of
5 the '50's?

6 A. I am guessing but that's close, 10 times.

7 Q. And how many times during the '60's?

8 A. '60's, probably only once.

9 Q. Only once. When was that?

10 A. I am trying to remember, probably '61-'62
11 somewhere around in there.

12 Q. Mr. Hennessy, did you assist in the
13 preparation of Reilly Tar's responses to the State of
14 Minnesota interrogatories?

15 A. Yes, I did.

16 Q. In this case?

17 A. Yes, I did.

18 Q. Were you an employee of the company at that
19 time?

20 A. Yes, I was.

21 Q. I believe you state in Interrogatory 63 that
22 you were one of the designers of the wastewater
23 separator at Saint Louis Park?

24 A. That's correct, I did the structural design
25 of the separator.

1 Q. But you did that without having been at the
2 site at that point?

3 A. Yes, I was at that time. As I said, a detail
4 engineer, what you might call a detail engineer, and I
5 was given the project for designing this wastewater
6 separator. All the engineering was done and what was
7 required was done and I was given the job of designing
8 the separator, which I did.

9 Q. Was it typical for you to work on detail
10 engineering projects without ever having been to the
11 site?

12 A. In those days it was, yes.

13 Q. Would that practice have changed over the
14 time you were with the engineering department?

15 A. Well, somewhat. Even today we start new
16 engineers on small projects on detailed design. In
17 other words, if we hired a brand new engineer out of
18 college we would give him a design like design a
19 separator or design pipe supports or design power
20 piping and see what he could do and help him out that's
21 what we would do.

22 Q. But you would generally have him do do design
23 work without having to go to the site itself?

24 A. The project engineer or someone that was in
25 charge of the project would be at the site and get the

1 information he needed. Of course, if he had to go to
2 the site to design it, well, yes, he would. If he had
3 to go there -- if he needed information that wasn't
4 available any other way.

5 Q. In the response to the same interrogatory,
6 and this is 63, you also refer to the straw filter as
7 being designed by you in conjunction with Mr. Horner?

8 A. Uh-huh.

9 Q. Did you go to the site to participate in the
10 design of the straw filter?

11 A. What year was that?

12 Q. The year of the response.

13 A. No, the year that the straw filter was built.
14 I would say no, I did not.

15 Q. According to Mr. Leshner it was 1951?

16 A. 1951? Well, I may have been in there in 1951.
17 I could have but I don't remember it. I wasn't there
18 for that purpose but I might have been there, yes.

19 Q. Do you remember what occasioned your first
20 visit to Saint Louis Park? Why did you go there?

21 A. Yes, it was to design an electro pitch plant.

22 (At this time United States Deposition
23 Exhibit 1 was marked for identification by
24 the Court Reporter.)

25 BY MR. HIRD:

1 Q. Mr. Hennessy, I have shown to you a document
2 marked United States 1 which consists of two pages of
3 Reilly Tar, date stamp number in succession 30688 and
4 30689. It appears to be a memorandum from you to Mr.
5 Horner dated February 27, 1957. Do you recognize it?

6 A. Yes, I do.

7 Q. Is this a document which you authored?

8 A. Yes, I was the author.

9 Q. I notice that the office designation here is
10 "Minneapolis plant". You were located at the
11 Indianapolis plant at that time?

12 A. I think I was in Minneapolis when I wrote
13 this. I believe that's why. I believe I was reporting
14 back to Mr. Horner from Minneapolis.

15 Q. But you were not regularly stationed in
16 Minneapolis?

17 A. No.

18 Q. You were visiting Minneapolis?

19 A. Correct.

20 Q. Does this document refresh your recollection
21 as to when was your first visit to the Saint Louis Park
22 plant?

23 A. Well, as I say, the electro pitch plant is
24 all built. See, this is discussing the operation of it.

25 Q. So this wasn't --

1 A. This isn't -- I wasn't up there to start
2 building the plant. I was up there looking at the
3 completed plant and seeing if it operates properly.

4 Q. So you had been at the plant prior to
5 February 27, 1957?

6 A. Oh, yes, correct.

7 MR. HIRD: Off the record.

8 (At this time a discussion was held off the
9 record.)

10 MR. HIRD: I would like to thank Mr.
11 Hennessy for coming today and I appreciate his making
12 himself available at this late time in the afternoon.
13 We are ending now but we intend to resume his
14 deposition at another date which will be specified in
15 the future.

16 THE WITNESS: Fine.

17

18

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25

1 STATE OF MINNESOTA)
) ss.
 2 COUNTY OF WASHINGTON)

3
 4 Be it known that I took the deposition of Richard
 J. Hennessy on the 15th day of October, 1982, at
 Indianapolis, Indiana;

5
 6 That I was then and there a Notary Public in and
 for the County of Washington, State of Minnesota, and
 7 that by virtue thereby I was duly authorized to
 administer an oath;

8 That the witness before testifying was by me first
 9 duly sworn to testify the whole truth and nothing but
 the truth relative to said cause;

10 That the testimony of said witness was recorded in
 Stenotype by myself and transcribed into typewriting
 11 under my direction; and that the deposition is a true
 record of the testimony given by the witness to the
 12 best of my ability;

13 That I am not related to any of the parties hereto
 nor interested in the outcome of the action;

14
 15 That the reading and signing of the deposition by
 the witness was executed as evidenced by the preceding
 page;

16
 17 That Notice of Filing was waived.

18 WITNESS MY HAND AND SEAL this 15th day of OCTOBER
1982.

20 _____
 Kirby A. Kennedy
 21 Court Reporter
 22
 23
 24
 25

1 UNITED STATES DISTRICT COURT

2 DISTRICT OF MINNESOTA

3 FOURTH DIVISION

4 -----
United States of America,

5 Plaintiff,

and

6 State of Minnesota, by its
7 Attorney General Warren Spannaus,
its Department of Health, and
its Pollution Control Agency,

8 Plaintiff-Intervenor,

vs.

9 Reilly Tar & Chemical Corporation;
Housing and Redevelopment authority
10 of Saint Louis Park; Oak Park
Village Associates; Rustic Oaks
11 Condominium Incorporated; and
Philip's Investment Company,

12 Defendants.

and

13 City of Saint Louis Park,

Plaintiff-Intervenor,

14 vs.

15 Reilly Tar and Chemical Corporation,
Defendant.

and

16 City of Hopkins,

Plaintiff-Intervenor,

17 vs.

18 Reilly Tar & Chemical Corporation,
Defendant.

Civil No.
4-80-469

19 -----
20
21 The Deposition of Richard J. Hennessy, taken
22 pursuant to Notice of Taking Deposition, taken before
Kirby A. Kennedy, a Notary Public in and for the County
23 of Washington, State of Minnesota, taken on the 15th
day of October, 1982, at Indianapolis, Indiana,
24 commencing at approximately 3:00 o'clock p.m.
25

APPEARANCES

DAVID HIRD, ESQUIRE, United States Attorney,
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ROBERT E. LEININGER, ESQUIRE, Enforcement
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60604, appeared for and on behalf of the United States
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DENNIS M. COYNE, ESQUIRE, and STEPHEN
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appeared for and on behalf of Plaintiff-Intervenor,
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ALLEN HINDERAKER, ESQUIRE, of the law firm of
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appeared for and on behalf of Plaintiff-Intervenor,
City of Saint Louis Park.

EDWARD J. SCHWARTZBAUER, ESQUIRE, and BECKY
COMSTOCK, ESQUIRE, of the law firm of DORSEY and
WHITNEY, 2200 First Bank Place, Minneapolis, Minnesota
55402, appeared for and on behalf of Defendant Reilly
Tar and Chemical Corporation.

1 RICHARD J. HENNESSY

2 a witness in the above-entitled
3 matter, after having been first
4 duly sworn, deposes and says as follows:
5

6 BY MR. HIRD:

7 Q. Would you please state your name and address
8 for the record, please?

9 A. Name is Richard J. Hennessy and I live at
10 5816 Crinittenden here in Indianapolis.

11 Q. Mr. Hennessy, because of the lateness of the
12 hour we are likely not to go very long today but we
13 intend to continue the deposition in the near future as
14 soon as arrangements can be made. I apologize for any
15 inconvenience.

16 A. Okay.

17 Q. Mr. Hennessy, what is the state of your
18 health?

19 A. I would say excellent, considering my age.

20 Q. I would probably agree with you. Mr.
21 Hennessy, you are no longer an employee of Reilly Tar &
22 Chemical, are you?

23 A. I retired in 1980. My last day on the
24 payroll was December 31, 1980.

25 Q. Mr. Hennessy, are you represented today as a

1 witness by Ms. Comstock, Mr. Schwartzbauer or Mr.
2 Polack?

3 A. Yes.

4 Q. Mr. Hennessy, are you receiving a pension
5 currently from Reilly Tar & Chemical?

6 A. Yes, I am.

7 Q. Mr. Hennessy, are you a shareholder or bond
8 holder or pension holder of Reilly Tar & Chemical?

9 A. No, I am not.

10 Q. Are you participating in any profit sharing
11 program of Reilly Tar & Chemical?

12 A. No, no profit sharing.

13 Q. Mr. Hennessy, did you review any documents in
14 preparation for your testimony today?

15 A. Yes, I did.

16 Q. Were these documents provided to you by
17 Counsel?

18 A. Yes.

19 Q. Did you review any documents that were not
20 provided to you by Counsel?

21 A. Well, yes, I reviewed some that I furnished
22 when I was an employee back in 1980, you know, drawings
23 and engineering documents.

24 Q. In connection with this lawsuit?

25 A. Yes, correct.

1 Q. Did you review any documents that you did not
2 furnish back in 1980 in connection with this lawsuit or
3 which were provided by Counsel?

4 A. I reviewed documents which I did not furnish,
5 yes.

6 Q. I am sorry. Perhaps my question was not
7 clear. You have identified two groups of documents;
8 one, the documents that you prepared back in 1980 and,
9 two, the group of documents which were furnished to you
10 by Counsel?

11 A. Correct.

12 Q. I was asking whether there was a third group
13 of documents that fit into neither category which you
14 reviewed in preparation for your testimony today?

15 A. No, I think all the other documents were
16 either furnished by Counsel or came from the
17 engineering department.

18 Q. And by "came from the engineering department"
19 you mean documents that you prepared yourself in
20 connection with this case?

21 A. Well, not necessarily ones that I prepared.
22 We went through all the files and pulled out anything
23 we could find that had reference to this case and I
24 reviewed those and some of them I had nothing to do
25 with.

1 Q. But these were documents that were prepared
2 in connection with this case?

3 A. Well, they were just copies of old letters
4 and things of that nature, estimates for jobs and so
5 forth.

6 Q. Now, focusing your attention on just your
7 preparation for this deposition today.

8 A. Okay.

9 Q. I understand that Counsel furnished you with
10 some documents?

11 A. Yes.

12 Q. Were there any other documents which you may
13 have pulled out of the files at an earlier date which
14 you reviewed which were not furnished to you by Counsel?
15 If the question is not clear I will --

16 A. Well, there were. I mean, as I say, I went
17 through our files. Mr. Roder and I went through the
18 files together. He is a chemist that works at the lab
19 and we went through the files and we pulled out
20 anything that had anything at all to do with the case
21 that we could find and we bundled them up and sent them
22 downtown to Rob Polack.

23 Q. I am trying to make the question clear. I
24 think there is a misunderstanding. I understand that
25 at one period of time back in 1980 you did review those

1 documents and sent them down to Rob Polack?

2 A. That is correct.

3 Q. What I am asking now, in 1982 I understand
4 that you would have reviewed a group of documents that
5 were provided by Counsel?

6 A. That's correct.

7 Q. I was asking in 1982 did you go back and look
8 at any other documents besides those provided by
9 Counsel, including those that you may have isolated
10 back in 1980?

11 A. I can't think of any.

12 Q. I apologize for the confusion but I think
13 that clears it up. Have you brought the documents
14 which were furnished to you by Counsel today?

15 A. No, I returned them to Counsel. They are a
16 big bundle. I didn't want to be carrying them home.

17 Q. I quite understand.

18 MR. HIRD: Counsel, I am going to repeat
19 a request made by Counsel for my co-plaintiff that
20 these documents be produced. I believe that we are
21 entitled to them under Rule 612 under the Federal Rules
22 of Evidence.

23 MR. SCHWARTZBAUER: Well, I previously
24 stated our position and I will adhere to that.

25 MR. HIRD: I understand that. Can you

1 keep those documents which were furnished to Mr.
2 Hennessy in tact?

3 MR. SCHWARTZBAUER: Yes, I will.

4 MR. HIRD: Thank you.

5 BY MR. HIRD:

6 Q. Mr. Hennessy, where are you from originally?

7 A. I was born in Saint Louis, Missouri and lived
8 there until I was 16 years old.

9 Q. Where did you go to college?

10 A. Notre Dame, Southbend, Indiana.

11 Q. What did you study there?

12 A. Civil engineering.

13 Q. When did you graduate from college?

14 A. I got my degree in 1933.

15 Q. Did you undertake any post-graduate education?

16 A. No, I didn't.

17 Q. Did you go to work following getting your
18 degree?

19 A. Yes, I was lucky because in those days jobs
20 were hard to find and I found one.

21 Q. With who?

22 A. Reilly Tar and Chemical.

23 Q. I gather you spent your entire professional
24 career at Reilly?

25 A. That's correct.

9
1 Q. Could you describe the various stages of your
2 work career at Reilly Tar? Give us a sense of what
3 your job title was and what your responsibility were.

4 A. I started out in the engineering department
5 and I was in design and I would say I was a detail
6 engineer, what we would call a detail engineer, up
7 until maybe '44 or '45 or '46, somewhere in there. In
8 other words, they would have a project like I would
9 design a structure or I would design a support for
10 something and then you keep getting into more and more
11 design of more and more larger structures and more
12 important structures until finally I became a project
13 engineer.

14 Q. That was in '45?

15 A. Say '45 or '46, somewhere around there, '45
16 maybe. I would be in charge of a project and I would
17 then have engineers working under me on the project and
18 then in 19 -- I don't know when I was made assistant
19 chief engineer, but it must have been maybe in 1950 and
20 then I was made chief engineer in 1962.

21 Q. All this time you were based in Indianapolis?

22 A. Yes, correct.

23 Q. I am a little unclear as to the distinction
24 between a detail engineer and a project engineer.

25 A. When you get a fellow just out of college you

1 wouldn't give him a big project like if you were going
2 to build an addition to a plant, you wouldn't give him
3 that job. You would give him the job of designing some
4 part of it. Like he could design a shop building, or
5 he could design steam piping, or maybe all the power
6 piping through the plant. It would depend on what his
7 background was too, what he took in college. He could
8 design the electrical system, one part of it, one phase
9 of it.

10 Q. By a part or phase you mean a complete system?

11 A. If you had an electrical engineer he would
12 design the power wiring to the plant and maybe get into
13 instrumentation as you go along. Okay. A mechanical
14 engineer would design pressure vessels, a civil
15 engineering would too. He would design pressure
16 vessels, he would design boiler installations, he would
17 design the process piping, that type of thing.

18 Q. Were those the things that you in fact
19 designed, pressures vessels?

20 A. All of those. All of them, yes. In other
21 words, as you get along you would learn more and more.
22 For instance, I have designed power piping and I have
23 designed power wiring and process piping the whole bit.

24 Q. Turning your attention I guess first to your
25 role as a detail engineer and then as a project

11
1 engineer, were you responsible for any specific plants
2 in terms of any problems that would appear in those
3 plants or were you responsible on an ad hoc basis?

4 A. I was responsible for all our plants. Are
5 you talking now about which stage, when I am chief
6 engineering or detail engineer?

7 Q. Detail engineer.

8 A. Detail engineering, the project manager would
9 be given a project and he would give me -- like you
10 design this building or you design this process piping
11 or you design a pressure vessel. As I went along and
12 learned more and more how to do various things,
13 building codes, electrical codes and so forth, and he
14 would give me one part of it to design. Okay.

15 Q. My question would be would you, in your role
16 as a detail engineer, be put on say all the projects
17 involving Saint Louis Park, all the projects involving
18 Maywood, but not on the projects on Granite City?

19 A. No.

20 Q. In other words, you would have specific
21 obligations for specific plants and other people have
22 obligations for other plants?

23 A. No, our engineering department did
24 engineering, that is certain engineering we did for all
25 plants.

1 Q. So you could be assigned to a project?

2 A. Any points.

3 Q. In the beginning you could be assigned to a
4 project with any point?

5 A. Yes.

6 Q. Did you over time develop particular
7 familiarity with processes at other plants?

8 A. Yes..

9 Q. Which plants were you most closely identified
10 with?

11 A. Well, of course, the plants I was most
12 closely identified was our Indianapolis pyridine plants
13 from 1952 on and and in 1960 when that really took off,
14 it took a tremendous amount of engineering time, it
15 still is I understand. It grew like mad.

16 Q. Which others would you be closely identified
17 with and done a great deal of work on over the years?

18 A. I have done a great deal of work for the
19 Cleveland plant. The ones where I did a great deal of
20 work, I would say I did a lot for the Cleveland plant,
21 a lot for the Seattle plant when it was in existence.
22 Ironton, Utah, Granite City, Illinois and Saint Louis
23 Park I did some. The plants where I did some but not
24 as much would be Saint Louis Park and Chattanooga. I
25 did a tremendous amount for Loan Star Texas, that's an

1 enamel plant, that was built in 1950. I was more or
2 less project engineer on that job.

3 Q. At the time you joined the engineering
4 department how many engineers were in the department?

5 A. I would have to stop and think. You mean
6 counting myself or not counting myself?

7 Q. Either way, whichever is more convenient.

8 A. There is one, two, three, four, five, I would
9 say six counting myself.

10 Q. Would Mr. Horner and Mr. Mitchell be among
11 those six?

12 A. Yes, Mr. Horner was the chief engineer.

13 Q. How long had Mr. Horner been with the company
14 when you joined?

15 A. I would say he joined the company about 1924,
16 that's about then. You know, I might miss it a year or
17 two but somewhere around there.

18 Q. What was Mr. Mitchell's position at that time?

19 A. Mr. Mitchell was our process engineer.

20 Q. And he had been with the company about how
21 long?

22 A. I would guess he came with the company about
23 1927 or '26 or maybe '28, somewhere. Late 20's.

24 Q. By the time you retired as chief of the
25 engineering department how many engineers were in the

1 department?

2 A. Nine. Now that doesn't include draftsmen,
3 this is engineers.

4 Q. Were there draftsmen in the department when
5 you joined back in --

6 A. No, there were none.

7 Q. When did you bring in draftsmen?

8 A. After the war. About 1945 we started hiring
9 draftsmen.

10 Q. About how many draftsmen were in the
11 department? How many draftsmen did you hire about the
12 first time you started taking draftsmen in?

13 A. Two I would say.

14 Q. And about how many did you have when you left
15 the department?

16 A. Four.

17 Q. Your testimony was that when you joined the
18 department there were six engineers and when you left
19 there were nine. Was there ever any time when there
20 were more than nine engineers in the department that
21 you can recall?

22 A. Not in the department, but things changed.
23 In other words, when we went into synthetic products
24 plants a lot of the engineering or -- well, a lot of
25 the processes were designed by Doctor Wheeler who had a

1 Ph.D.. He had a Ph.D. in chemistry and he has a
2 chemical engineer, he has a bachelors degree in chemical
3 engineering. He designed a lot of the processes or
4 oversaw the design of chemical process, let's put it
5 that way.

6 Q. But he was not in the engineering department?

7 A. No.

8 Q. He was in the chemical division?

9 A. Well, at the time I retired our company had a
10 little different -- it's kind of hard to put titles on
11 it. He was, I would say, the assistant director of
12 research, that would be the title I would give him, and
13 then from 1950 or '52 on I would say he was more or
14 less in charge of all synthetic chemicals. He was more
15 or less in charge of the process design and Mr.
16 Mitchell continued on in charge of process design for
17 the tar plants.

18 Q. To whom did the engineering department report
19 at the outset of your career with the department?

20 A. At the outset of my career they reported to
21 Mr. Reilly, Mr. P. C. Reilly.

22 Q. And what was his position at that time?

23 A. He was president and practically owner of the
24 company as far as I know.

25 Q. Did the department, throughout the time you

1 were there, continue to report to the president of the
2 company?

3 A. During the time I was there, no.

4 Q. When did you start reporting to someone in a
5 different position from your -- I think you are a
6 little confused.

7 A. Okay.

8 Q. Should I restate the question? I understand
9 that at the beginning, at the time you joined the
10 department, you reported directly to the president.

11 The chief engineer reported directly to the
12 president. He might have also reported to the
13 assistant, Mr. Edwards, but I think Mr. Reilly made the
14 final decision.

15 Q. Did the chief engineer, throughout the time
16 with your department, report directly to the president
17 recognizing that the individuals may have changed?

18 A. When I first became chief engineer I reported
19 to Mr. T. E. Reilly. I can't tell you what he was. He
20 was president at one time but what he was in 1962 when
21 I became chief engineer I can't remember what his title
22 was. He might have been a vice-president. I think Mr.
23 P. C. Reilly, Junior was president and Mr. Tom Reilly
24 was vice-president, I am not sure about the year.

25 Q. Do you recall who Mr. Horner began to report

1 to after Mr. P. C. Reilly, Senior died?

2 A. He reported to whoever was running the
3 management. And who would that be? That would be, I
4 believe, Mr. Edwards is still around. I can't remember
5 who became president of the company but he reported to
6 people like Mr. Edwards and Tom Reilly and P. C. Reilly,
7 Junior, that's who he reported to. I can't remember
8 the titles because I can't remember what year they had
9 what position.

10 Q. When Mr. Finch was deposed he referred to a
11 department which he described as the production
12 department. Are you familiar with that term?

13 A. The production department would be the --
14 well, the man in charge of production, of tar plants,
15 when he retired was Mr. Lesher and the man in charge of
16 the production of the synthetic plant was Doctor
17 Wheeler but he has since retired.

18 Q. So that it's likely that what Mr. Finch was
19 referring to by the production department is the tar
20 department?

21 A. Yes. Various people held that job over the
22 years, yes.

23 Q. If a plant manager wanted to change part of
24 his operation or install a new piece of equipment what
25 role would the engineering department play in effecting

1 that decision; in other words, would the manager have
2 to seek the engineering department's advice?

3 A. To answer that question I will have to
4 explain. It would be none, or just advice, or do the
5 job for him. Now, the engineering department played
6 the role of more or less like a consultant to the plant
7 and if they had an engineering problem they could call
8 us and we would give them advice. Sometimes that's all
9 it was. Other times, if they wanted to replace a pump
10 or something, they could do it themselves if there was
11 going to be no major change. They would buy the new
12 one and throw the old one away and put it in. They had
13 plant engineers, either plant engineers or maintenance
14 that did it. They would maintain pumps and do things
15 like that. However, if there were going to be a major
16 change, either an improvement in the plant or something
17 that that required engineering work, then we would get
18 involved.

19 Q. Did the plant engineers report to the
20 engineering department or did they just report to the
21 plant managers?

22 A. They just reported to the plant managers.

23 Q. You mentioned that certain minor activities
24 could be done by a plant manager without consulting the
25 engineering department?

1 A. That is correct, yes.

2 Q. Would there have to be any kind of
3 notification prior to their going ahead with it? In
4 other words, would they have to submit a work order to
5 someone in Indianapolis or could they just simply
6 decide to buy a new pump?

7 A. Each plant had a limit of how much they could
8 spend without getting an authorization for the
9 expenditure, that's the way the company controlled our
10 cash flow, and if it went over that they had to submit
11 a work order to the management. All work orders really
12 originated in the plants.

13 Q. Is the limit -- I am sorry, did you finish?

14 A. They would just request a work order which
15 would be a request for authorization to do the job.

16 Q. Were there different limits at different
17 plants?

18 A. Yes, there were.

19 Q. Do you recall whether Saint Louis Park
20 generally had a lower limit than the other plants or a
21 higher limit or --

22 A. Well, I am sure they would have a higher
23 limit than Chattanooga and much lower limit than
24 Indianapolis, I know that.

25 Q. Why do you say that?

1 A. Because the type of equipment involved.

2 Q. Indianapolis had much more expensive

3 equipment?

4 A. Yes.

5 Q. But Saint Louis Park had more expensive

6 equipment than Chattanooga?

7 A. Yes, more of it.

8 Q. Would you happen to recall what these limits

9 were at particular times in the first few years you

10 were there, '38 to '44?

11 A. I would just recall a ballpark figure which I

12 would say was around \$500. That's a long time ago.

13 Q. I understand. I appreciate your exercising

14 your recall. During the period that you were project

15 engineer from about '45 to '50, I believe, were your

16 approximate dates, do you recall what the --

17 A. Project engineer?

18 Q. Yes.

19 A. The limit I can't recall.

20 Q. Do you have a ballpark figure?

21 A. Oh, I would guess it didn't go up very much.

22 I would say may be \$750 but I can't remember. But

23 that's a ballpark figure I would say.

24 Q. How about when you were assistant chief

25 engineer from '50 to '62?

21
1 A. Probably about the same. There wasn't much
2 difference, I don't think, between '50 and '60.

3 Q. During the period that you were chief
4 engineering from the '60's until about the time that
5 the plant closed, what was your recollection of the
6 limit for the Saint Louis Park plant?

7 A. Well, for making a minor repair without
8 getting an authorization I would say it was around \$750,
9 but I don't remember.

10 Q. Would --

11 A. Unless, of course, there was an emergency.
12 Now, that -- this is something else. If there was an
13 emergency, like if there was something happened that
14 they had to fix right now they could call up and tell
15 them they were going to do it and they would let them
16 go.

17 Q. Who would they call?

18 A. They would call the finance committee.

19 Q. Well, who would constitute the finance
20 committee, as you recall?

21 A. At different times there were different
22 people. I think there was -- I think Tom Ryan, Tom
23 Reilly, P. C. Reilly.

24 Q. P. C. Reilly, Junior?

25 A. P. C. Reilly, Junior, I am sorry, yes. I

22
1 think McAdams was on it.

2 Q. Did this finance committee exist prior to the
3 death of Mr. P. C. Reilly, Senior?

4 A. No.

5 Q. So before then they would have called up in
6 an emergency?

7 A. They would have called him, yes.

8 Q. Would the Saint Louis Park plant have had a
9 lower or a higher limit than the Ironton plant?

10 A. I would say about the same.

11 Q. Now, assuming that a plant monitor wanted to
12 change a process or introduce a new piece of equipment
13 that would have involved an expenditure over the limit,
14 would he then be expected to contact the engineering
15 department?

16 A. If he needed engineering help on it, yes, he
17 would.

18 Q. If he did need it could he rely totally on
19 his plant engineer or would he --

20 A. Oh, yes, sure.

21 Q. So if he did need engineering help he could
22 simply rely on his plant engineer and wouldn't have to
23 call the engineer --

24 A. That's correct, yes.

25 Q. If the engineering department was called in

1 on a specific project, was it then required that the
2 engineer in your department approve the project before
3 it could go forward or could the project go forward
4 even without the engineering department to approve it?

5 A. No project of that nature could go forward
6 until it was authorized by the finance committee. By
7 "going forward" you are talking about actually buying
8 the equipment and purchasing things, no, it could not.

9 Q. But was the engineering department approval
10 required? In other words, if a plant manager --

11 A. The approval was required for a big
12 expenditure, yes, if it were a large addition or
13 something of that nature.

14 Q. So a plant manager could not go -- if he had
15 an idea that was disapproved by the engineering
16 department he could not then take it up to the finance
17 committee?

18 A. He could, yes.

19 Q. But it was unlikely?

20 A. It was very unlikely that it would go
21 anywhere but, yes, it could.

22 Q. Did the engineering department have the
23 authority to investigate engineering problems on its
24 own initiative without a request from the plant manager?

25 A. I don't know of any case where we ever did it.

24

1 Q. There would never be an instance where
2 something might be disturbing an engineer about a
3 plant's operation and the engineer would then call up
4 the plant or arrange for a visit in the plant to check
5 it out without first receiving a request from the plant
6 manager?

7 A. The plant manager worked for the production
8 manager and if we found something like that we would
9 immediately go to the production manager, not to be
10 going over the guys head, but that's what you do,
11 everybody has to know what is going on. So we would go
12 to the production manager and in a few telephone calls
13 we would get it ironed out or start an investigation or
14 something.

15 Q. Did you do that on occasion?

16 A. I am sure we did but I can't recall the
17 specific occasions but I am sure we did.

18 Q. When --

19 A. See, the plant managers did not work for the
20 engineering department, they were in production and we
21 were not their boss, never were their boss.

22 Q. I understand that.

23 A. Yes.

24 Q. I am just trying to understand the
25 relationship in a little more detail.

25

1 A. Okay.

2 Q. And I appreciate your assistance in enlightening
3 me.

4 A. All right.

5 Q. When did you first visit the Saint Louis Park
6 plant?

7 A. In the early 1950s, I can't recall the exact
8 year, but it was in 1950, somewhere around '51 -- '52.

9 Q. You were never on the plant site before
10 the '50's?

11 A. No, it's the first time I ever went there.

12 Q. You had been in the engineering department
13 then over 12 years?

14 A. Correct, yes.

15 Q. Did anyone else from the engineering
16 department make visits to the Saint Louis Park plant
17 during those first 12 years?

18 A. I don't recall much going on in Saint Louis
19 Park before 1950 but I believe Mr. Horner made -- I
20 would say he probably made at least one or two trips in
21 that time to Saint Louis Park but I can't recall why.

22 Q. What about Mr. Mitchell?

23 A. I am sure Mr. Mitchell did too, yes.

24 Q. After you first visited the Saint Louis Park
25 plant in 1950, or approximately 1950, how frequently

1 did you go there thereafter?

2 A. I would say I went there -- how many times.

3 Q. Say --

4 A. I would say 10 times during that decade of

5 the '50's?

6 A. I am guessing but that's close, 10 times.

7 Q. And how many times during the '60's?

8 A. '60's, probably only once.

9 Q. Only once. When was that?

10 A. I am trying to remember, probably '61-'62

11 somewhere around in there.

12 Q. Mr. Hennessy, did you assist in the

13 preparation of Reilly Tar's responses to the State of

14 Minnesota interrogatories?

15 A. Yes, I did.

16 Q. In this case?

17 A. Yes, I did.

18 Q. Were you an employee of the company at that

19 time?

20 A. Yes, I was.

21 Q. I believe you state in Interrogatory 63 that

22 you were one of the designers of the wastewater

23 separator at Saint Louis Park?

24 A. That's correct, I did the structural design

25 of the separator.

1 Q. But you did that without having been at the
2 site at that point?

3 A. Yes, I was at that time. As I said, a detail
4 engineer, what you might call a detail engineer, and I
5 was given the project for designing this wastewater
6 separator. All the engineering was done and what was
7 required was done and I was given the job of designing
8 the separator, which I did.

9 Q. Was it typical for you to work on detail
10 engineering projects without ever having been to the
11 site?

12 A. In those days it was, yes.

13 Q. Would that practice have changed over the
14 time you were with the engineering department?

15 A. Well, somewhat. Even today we start new
16 engineers on small projects on detailed design. In
17 other words, if we hired a brand new engineer out of
18 college we would give him a design like design a
19 separator or design pipe supports or design power
20 piping and see what he could do and help him out that's
21 what we would do.

22 Q. But you would generally have him do design
23 work without having to go to the site itself?

24 A. The project engineer or someone that was in
25 charge of the project would be at the site and get the

1 information he needed. Of course, if he had to go to
2 the site to design it, well, yes, he would. If he had
3 to go there -- if he needed information that wasn't
4 available any other way.

5 Q. In the response to the same interrogatory,
6 and this is 63, you also refer to the straw filter as
7 being designed by you in conjunction with Mr. Horner?

8 A. Uh-huh.

9 Q. Did you go to the site to participate in the
10 design of the straw filter?

11 A. What year was that?

12 Q. The year of the response.

13 A. No, the year that the straw filter was built.
14 I would say no, I did not.

15 Q. According to Mr. Leshar it was 1951?

16 A. 1951? Well, I may have been in there in 1951.
17 I could have but I don't remember it. I wasn't there
18 for that purpose but I might have been there, yes.

19 Q. Do you remember what occasioned your first
20 visit to Saint Louis Park? Why did you go there?

21 A. Yes, it was to design an electro pitch plant.

22 (At this time United States Deposition

23 Exhibit 1 was marked for identification by

24 the Court Reporter.)

25 BY MR. HIRD:

1 Q. Mr. Hennessy, I have shown to you a document
2 marked United States 1 which consists of two pages of
3 Reilly Tar, date stamp number in succession 30688 and
4 30689. It appears to be a memorandum from you to Mr.
5 Horner dated February 27, 1957. Do you recognize it?

6 A. Yes, I do.

7 Q. Is this a document which you authored?

8 A. Yes, I was the author.

9 Q. I notice that the office designation here is
10 "Minneapolis plant". You were located at the
11 Indianapolis plant at that time?

12 A. I think I was in Minneapolis when I wrote
13 this. I believe that's why. I believe I was reporting
14 back to Mr. Horner from Minneapolis.

15 Q. But you were not regularly stationed in
16 Minneapolis?

17 A. No.

18 Q. You were visiting Minneapolis?

19 A. Correct.

20 Q. Does this document refresh your recollection
21 as to when was your first visit to the Saint Louis Park
22 plant?

23 A. Well, as I say, the electro pitch plant is
24 all built. See, this is discussing the operation of it.

25 Q. So this wasn't --

1 A. This isn't -- I wasn't up there to start
2 building the plant. I was up there looking at the
3 completed plant and seeing if it operates properly.

4 Q. So you had been at the plant prior to
5 February 27, 1957?

6 A. Oh, yes, correct.

7 MR. HIRD: Off the record.

8 (At this time a discussion was held off the
9 record.)

10 MR. HIRD: I would like to thank Mr.
11 Hennessy for coming today and I appreciate his making
12 himself available at this late time in the afternoon.
13 We are ending now but we intend to resume his
14 deposition at another date which will be specified in
15 the future.

16 THE WITNESS: Fine.

STATE OF MINNESOTA)
) ss.
COUNTY OF WASHINGTON)

Be it known that I took the deposition of Richard J. Hennessy on the 15th day of October, 1982, at Indianapolis, Indiana;

That I was then and there a Notary Public in and for the County of Washington, State of Minnesota, and that by virtue thereby I was duly authorized to administer an oath;

That the witness before testifying was by me first duly sworn to testify the whole truth and nothing but the truth relative to said cause;

That the testimony of said witness was recorded in Stenotype by myself and transcribed into typewriting under my direction; and that the deposition is a true record of the testimony given by the witness to the best of my ability;

That I am not related to any of the parties hereto nor interested in the outcome of the action;

That the reading and signing of the deposition by the witness was executed as evidenced by the preceding page;

That Notice of Filing was waived.

WITNESS MY HAND AND SEAL this ____ day of ____
_____.

Kirby A. Kennedy
Court Reporter

1 UNITED STATES DISTRICT COURT

2 DISTRICT OF MINNESOTA

3 FOURTH DIVISION

4 -----
5 United States of America,

6 Plaintiff,

7 and

8 State of Minnesota, by its
9 Attorney General Warren Spannaus,

10 its Department of Health, and

11 its Pollution Control Agency,

12 Plaintiff-Intervenor,

13 vs.

14 Reilly Tar & Chemical Corporation;
15 Housing and Redevelopment authority

16 of Saint Louis Park; Oak Park

17 Village Associates; Rustic Oaks

18 Condominium Incorporated; and

19 Philip's Investment Company,

20 Defendants.

21 and

22 City of Saint Louis Park,

23 Plaintiff-Intervenor,

24 vs.

25 Reilly Tar and Chemical Corporation,

Defendant.

and

City of Hopkins,

Plaintiff-Intervenor,

vs.

Reilly Tar & Chemical Corporation,

Defendant.

Civil No.
4-80-469

The Deposition of Richard J. Hennessy, taken
pursuant to Notice of Taking Deposition, taken before
Kimberly J. Stookesberry a Notary Public in and for the
County of Hennepin State of Minnesota, taken on the
10th day of October, 1982, at Indianapolis, Indiana,
commencing at approximately 1:00 o'clock p.m.

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1 RICHARD J. HENNESSY

2 the Witness in the above-entitled
3 matter after having been previously duly
4 sworn deposes and says as follows:
5

6 CONTINUED CROSS-EXAMINATION

7 BY MR. HIRD:

8 Q. Mr. Hennessy, since our last meeting have you
9 had an opportunity to review the transcript of the
10 deposition?

11 A. Yes.

12 Q. Is there anything you would like to change or
13 correct in that transcript?

14 A. Well, there were a few minor errors like they
15 said I got my degree in 1933 when it was 1938. Nothing
16 serious. Nothing big. I just noticed a few minor
17 things like that.

18 Q. Are you going to submit a written sheet with
19 transcript corrections?

20 A. I think I did already. Didn't I submit them
21 to you, Rob?

22 MR. SCHWARTZBAUER: I don't expect we'll
23 sign the deposition until it's finished.

24 A. Yes.

25 Q. I just wanted to make sure.

1 A. There were a very, very few minor corrections.
2 Very few. They really didn't effect the deposition at
3 all. In fact, the most major thing was the year I
4 graduated from college. So, you know, there was
5 nothing serious.

6 Q. If I recall in your first day of testimony,
7 Mr. Hennessy, you mentioned that you had your degree in
8 civil engineering.

9 A. That's correct.

10 Q. What particular skills did you learn in
11 college that you found of use in your earliest years at
12 Reilly Tar? In other words, were you trained in the
13 types of engineering projects that you faced when you
14 first started out at Reilly?

15 A. I was trained in structural design really.
16 And when Reilly was looking for a man back then that's
17 what they wanted. They wanted someone who was trained
18 in structural design.

19 Q. In your first few years were most of the
20 projects you worked on structural design projects?

21 A. Yes, they were. Um-hum.

22 Q. What other areas did you develop skills or
23 expertise in during the course of your time with Reilly
24 Tar?

25 A. Well, of course, after I was there I learned

1 to design pressure vessels, pour piping, process piping,
2 some metalurgical skills, working with stainless steel.
3 Then in 1952 we went into synthetic chemicals and that
4 was a whole new ball game.

5 Q. Did you learn chemical engineering then?

6 A. Well, I won't say that I could pass a test in
7 chemical engineering, but I learned a lot of chemical
8 engineering. In other words, you overlap. These
9 engineers -- see, our company wasn't big enough that we
10 had a civil engineering and chemical engineering and an
11 electrical engineering department. We just learned
12 enough of all of them to get by, you know, to do our
13 job.

14 Q. Were all the people in the engineering
15 department generally generalists?

16 A. I would say yes, they were. Some of them
17 were chemical engineers. Their degrees said they were
18 chemical engineers, some said it was an electrical
19 engineering. They were all general.

20 Q. Yes. But if a problem came up, people would
21 not be assigned to that on the basis of expertise, but
22 more on the basis of --

23 A. Past experience, yes.

24 Q. If they had done the same thing before?

25 A. Yes.

1 Q. So a chemical engineer could wind up dealing
2 with structural problems and you could wind up dealing
3 with chemical problems?

4 A. That's correct. Yes.

5 Q. Did you take any further education or
6 training courses?

7 A. I never went to school, no. I never had an
8 advance degree from a recognized university, no.

9 Q. Did you take any short courses or seminars?

10 A. I attended only one seminar and that was at
11 Purdue University which was probably in the late '50's,
12 maybe the early '60's.

13 Q. What was that seminar on?

14 A. It was on disposal of waste water.

15 Q. Why did you decide to go to that seminar in
16 the late '50's or early '60's?

17 A. Well, okay. The reason I went was because
18 you might say more or less political reasons. The man
19 that gave the seminar was the man in charge of that at
20 Loan Star Steel and we were closely allied with Loan
21 Star Steel. We bought all our tar. And I more or less
22 went because he gave the seminar.

23 Q. Had you been dealing with waste water
24 problems on a very frequent basis during the few years
25 just before then?

1 A. No, not really.

2 Q. Was there any particular pressing problem in
3 regard to that effluent waste water at that time?

4 A. No. In fact, our waste water steel plant
5 there is no problem at all with that.

6 Q. Did you take notes or keep materials from
7 that seminar?

8 A. I did but I wouldn't know where they are now.
9 Gee wiz, that was 20 years ago or more.

10 Q. Did you ever have occasion to refer to those
11 notes or those materials after the seminar?

12 A. I don't believe so, no.

13 Q. During the first few years at Reilly when you
14 were detail engineer, what were the largest projects or
15 most important projects that you worked on?

16 A. In 1941 I designed all the structures for the
17 Bell West Virginia plant. I did structural design for
18 a boiler installation at Indianapolis. The only reason
19 I remember these is because they happened right before
20 the war. If we had delayed a little bit, we would have
21 had a lot of problem getting the material, you know, on
22 account of -- I forget what the bureau was that
23 controlled the materials, but you had to get government
24 permission to buy steel. You had to get -- what did
25 they call it? I can't remember.

1 Q. Was the West Virginia plant being built
2 essentially from scratch during that period?

3 A. Yes.

4 Q. Was that the major reason why you were hired
5 to work on the construction, the intended West Virginia
6 plant?

7 A. No. I was hired in 1938. I don't think the
8 West Virginia plant was thought of in 1938.

9 Q. During the war years what were the major
10 projects in the engineering office and perhaps the
11 major products you worked on?

12 A. I worked on a lot of projects that never came
13 to be. I worked on a wooden landing mat for the Air
14 Force. The idea was they could float the wood ashore
15 and with cables and wood they could put the landing mat
16 down. I worked on a coal carbonization plant for
17 Cincinnati, Ohio, for the Navy which they never built.
18 What else did I work on? Of course, I did structural
19 work for the company, you know. We had to buy used
20 materials in those days unless we had -- I can't
21 remember what they called it. You had to get some
22 permission from the federal government. They had a
23 name but I can't remember what it was.

24 Q. I guess from my understanding of some of
25 these answers that you've been giving you'd be working

1 on projects that Reilly was developing independent of
2 operating problems at particular plants?

3 A. Yes. That's correct.

4 Q. Would that kind of work as opposed to dealing
5 with a problem at a specific plant be the majority of
6 your work or was it --

7 A. In those days it was, yes, correct. Because
8 I was a new engineer just out of college and they
9 weren't about to turn me loose on some big project and
10 let me run it, no.

11 Q. When did they decide to turn you loose on a
12 big project?

13 A. Well, when I was made assistant chief
14 engineer which was somewhere in the late '40's I was
15 more or less in charge of projects then.

16 Q. Would these be --

17 A. After the war.

18 Q. Would these be projects dealing with
19 operating procedures at plants or would these be sort
20 of new ventures like the coal carbonization plant which
21 you described?

22 A. I never got into operating procedures.
23 Operating procedures was handled by the production
24 department and they had written operating procedures.
25 I never got into it. What I got into was first of all

1 structural design and then piping design and pressure
2 vessel design, that type of thing.

3 Q. But --

4 A. Foundations.

5 Q. Basically new equipment as opposed to dealing
6 with problems that came up at plants?

7 A. Well, new equipment plus a lot of times when
8 they changed a process we would move tanks and I got
9 involved that way, you know. They would repipe
10 something like if they had an order for some sort of a
11 chemical that they couldn't make, why, we would
12 redesign the piping so they could make this chemical.

13 Q. Was there more than one assistant chief
14 engineer?

15 A. No. Well, the title, of course, there were a
16 lot -- I mean, you know, there they were all assistants,
17 but I had the title. That's all. It didn't mean all
18 that much.

19 Q. I guess what I meant by operating procedures,
20 and I may have used a term inaccurately, was dealing
21 with problems like repairs to existing equipment or -

22 A. I got --

23 Q. Perhaps if I could extend my question a
24 little bit I might make myself a little clear. I'm
25 trying to get a sense of what portion of your time you

1 felt you spent in dealing with problems that may come
2 up at various plants that required engineering
3 attention as opposed to new ventures, new projects that
4 would be designed from scratch. I'm trying to get a
5 sense of which was predominant in terms of the amount
6 of time you spent.

7 A. Well, I'm sure I spent more time on new
8 projects than I did on major alterations to plants.
9 The reason I say that is we spent an inordinate amount
10 of time on projects that never went. We spent -- I can
11 remember spending as much as six months on a project
12 that was scrapped.

13 Q. So basically dealing with repairs or
14 operating problems was a sort of secondary priority for
15 the engineering department?

16 A. Yes. The only time I would really get into
17 something like that in those days as far as safety was
18 concerned or something of that nature.

19 Q. Was this true for the other engineers as well?

20 A. Yes. Yes. Yes. I wasn't the only one doing
21 this work. We all did the same type work, you know,
22 depending on how long we'd been with the company and
23 what our experience was.

24 Q. Does this kind of proportion or back-out
25 where the majority of your work was spent on new

1 projects and minority on repair work or fine tuning of
2 operating facilities continue through the entire time
3 that you were in the engineering department?

4 A. No. Because I would say about 1970 or maybe
5 a little later the Indianapolis plant which was a
6 synthetic plant was hiring chemical engineers for
7 operating and maintenance work in the plant. They did
8 not work for the engineering department. But, you know,
9 we interviewed them and they were hired just to check
10 their engineering background and so forth. But they
11 were hired by a personnel director we had at that time
12 and they were hired by the plant manager, and they
13 actually were reporting to the plant manager. Some of
14 these men were in operations. Some were in maintenance
15 or preventative maintenance. But this is only for the
16 Indianapolis plant.

17 Q. Leaving aside what happened with the
18 Indianapolis plant in 1970 or thereafter between the
19 time you joined the company, which I believe was 1938 --

20 A. '38, right.

21 Q. -- and 1970, would I be correct in saying
22 that the majority of your time and the time of your
23 colleagues in the engineering department was spent in
24 working on new projects and not in dealing with repairs
25 or difficulties that would come up in existing

1 processes at plants?

2 A. That is correct if by "new projects" you also
3 include major alterations to plants.

4 Q. But those would be major alterations?

5 A. Those would be new projects. For instance,
6 when we built a naphthalene plant at Cleveland. We
7 built a naphthalene plant at Granite City. These were
8 new projects, but they were really alterations, but we
9 had to build new buildings.

10 Q. You're installing new processes?

11 A. Right. Correct. Yes.

12 Q. Looking at the two groupings that I've
13 created, the one of new projects which I think you and
14 I have agreed include new processes at existing plants
15 and the other category which is repair work or dealing
16 with operating difficulties, is there any percentages
17 that you could put on those two categories in terms of
18 your time?

19 A. Just be a guess. I don't know. I really
20 couldn't say.

21 Q. Do you think you could make any kind of an
22 educated estimate?

23 A. The only kind of educated estimate I could
24 make is I'm sure I spent more time on new projects than
25 I did on problems.

1 Q. Something in the neighborhood of 60-40 or
2 something like that?

3 A. I couldn't say. I don't think it would even
4 be that high. I think it would be more than that. I
5 don't know.

6 Q. More than that on new projects?

7 A. Yes. We never kept such records as this so I
8 wouldn't know. This is just from memory. We never
9 kept a record of how much time we spent on this project
10 or that project.

11 Q. You mentioned at the new chemical plant that
12 engineers were hired by the plant themselves. Was it
13 the case before that that engineers that would work in
14 individual plants would be hired by the main
15 engineering office in Indianapolis?

16 A. No. There were some engineers hired at
17 various times at the plants away from Indianapolis, but
18 they were hired by the plant manager and they were
19 directly responsible to the plant manager and we didn't
20 interview them before they were hired.

21 Q. Would this plant manager send you a resume or
22 would they simply just send a note saying "We've hired
23 John Smith as an engineer," after the fact?

24 A. I can never remember receiving a resume from
25 a plant manager for an engineer that he hired. In fact,

1 there were very few of them ever hired. But they would
2 just call us and tell us what the guy had done that
3 they were hiring. That was it.

4 Q. I'm sorry if I cut you off.

5 A. No. That's all right.

6 Q. Were you involved at all in determining
7 whether a plant manager would have the authority to
8 hire an engineer?

9 A. No.

10 Q. I mean by "you" the engineering department.

11 A. No. I had absolutely no authority over any
12 plant manager. In fact, they had authority over me.
13 When we went to a plant it was understood that we were
14 there to help the plant manager and we were his
15 assistant, not his assistant, but we were there to
16 provide engineering service and he wasn't there to do
17 our work. In other words, we couldn't tell him to hire
18 this contractor or that contractor, you know. He was
19 the boss of the plant. He did what he wanted.

20 Q. Suppose you were at a plant and a plant
21 manager told you that he was going to do something and
22 you had a disagreement that you didn't think that was
23 appropriate.

24 A. This happens.

25 Q. Would you take it up with anyone beyond the

1 plant manager or simply take the plant manager's word
2 for it?

3 A. No. Usually we just discussed it with him.
4 I can't ever remember getting in a big fight with a
5 plant manager or coming at loggerheads with one and not
6 being able to decide on a course of action. I don't
7 think that ever happened.

8 Q. So you never would go over the plant
9 manager's head to the head of the refinery division,
10 for example?

11 A. I don't remember ever doing that. I don't
12 remember ever doing that. I could have done it, but I
13 could try to do it, then the product manager then could
14 either make the decision. He could either side with me
15 or side with the plant manager. But I don't think this
16 has ever happened. I can't remember it ever happening.

17 Q. Do you remember Mr. Horner ever doing that?

18 A. No. I can remember various things. For
19 instance, just to give you a for instance, the
20 naphthalene plant at Cleveland there was an argument
21 between Shulty (ph.) and Horner where it should be
22 located. They came along. Where Mr. Horner wanted it
23 we put it. But this wasn't because we overruled
24 Shulty(ph.). Shulty(ph.) was finally talked into it
25 and agreed that was the best location. But as far as

1 actually coming to -- I can't remember ever even trying
2 to overrule a plant manager. I just talked with them.

3 Q. Did you or Mr. Horner or anyone in the
4 engineering department for that matter ever have any
5 disagreement with Mr. Holstrom or Mr. Finch?

6 A. I'm sure we did. Disagreement, yes. But
7 going over their head, no. You know, I don't even
8 remember what the disagreement was. But I'm sure we,
9 did. I mean, any people that work together for that
10 number of years are going to have disagreements, let's
11 face it.

12 Q. Do you remember any specific disagreements
13 that you may have had?

14 A. No. I don't remember any, no.

15 Q. When you were deposed last time we talked a
16 little bit about the process by which a plant manager
17 if he wanted some change or alteration would seek the
18 approval of Mr. Reilly in the beginning, Mr. P. C.
19 Reilly in the beginning, and then later the finance
20 committee.

21 A. Right.

22 Q. Perhaps seek the advice of the engineering
23 department along the line of going through that process.
24 I wonder if you could tell me what kind of written
25 documents would be generally found in that process. In

1 other words, would a request usually for some kind of
2 work to be done at the plant usually begin by being
3 placed in writing from the plant manager to, say, the
4 head of the production division with a copy to the
5 engineering office or how would the customary process
6 of initiating a request be done?

7 A. Well, there again I'm talking from memory
8 again. I think what happened was that the plant
9 manager and the production manager here in Indianapolis
10 would consider a change or an addition to a plant, okay,
11 either because some customer wanted something. Then
12 when they decided that they would go ahead or not go
13 ahead then either would contact us, usually the
14 production manager but sometimes the plant manager
15 would. We would discuss the problem with him and then
16 the first thing we would do would be make a ballpark
17 estimate of what this would cost. This estimate was
18 given to the finance committee. From there they
19 decided whether we should do engineering work on it or
20 not.

21 Q. Would the manager typically put a request in
22 writing for something?

23 A. I don't believe so, no. Sometimes they would.
24 Sometimes they wouldn't. I think most of it was
25 handled by telephone.

1 Q. When you submitted your cost estimate to the
2 finance committee, would that be submitted in writing?

3 A. That was submitted in writing, yes. And you
4 have quite a bit of that I'm sure in your files.

5 Q. Yes, we have gotten some of those. I'm just
6 trying to get a sense of what documents were used. In
7 the earlier period before the finance committee when
8 Mr. P. C. Reilly essentially made the decisions by
9 himself, would it then be more likely that a request
10 would be put in writing initially by a plant manager?

11 A. It would be less likely because -- well, by
12 the plant manager. Okay. I really don't know. I
13 doubt it. I think it was handled the same way except
14 that Mr. P. C. Reilly was on one end of the phone
15 instead of a member of the finance committee.

16 Q. At the time when a decision was made to go
17 ahead with a project, would a written work order
18 generally issue?

19 A. Oh, yes. That's your authorization. You
20 don't dare spend any money until you get that
21 authorization.

22 Q. An oral authorization usually wouldn't be
23 given; it would be a written authorization?

24 A. An oral authorization would only be given in
25 an emergency, something that had to be done in a hurry.

1 It was very unusual to get an oral authorization.

2 Q. If someone got --

3 A. And if you did get an oral authorization, you
4 got a written authorization confirming it always. You
5 had to have that for your own protection. Well, not
6 your own protection if anybody was out to get you. But
7 it was just good business. That's the only way they
8 could control the thing.

9 Q. If a specific project was proposed and
10 ultimately executed, one would be expected to find in
11 the Reilly files a work order authorizing that project
12 to go forward?

13 A. If we spent money ~~there~~ there should be a work
14 order. If the engineering department spent money there
15 should.

16 Q. What if simply the plant spent money and it
17 was something that the engineering office was just
18 asked for advice on?

19 A. Okay. The plant can do this. For instance,
20 the plant could spend up to a certain amount of money
21 without an authorization. If it went over that and
22 they needed no engineering work, they could request a
23 work order. For instance, if they had to replace a
24 still or repair fire tubes in a still which would go
25 several thousand dollars, they would request a work

1 order stating why they needed to spend the money and
2 the work order would immediately be forthcoming. It
3 would just in by return mail they'd get it.

4 Q. But it would still be a written work order?

5 A. It would be a written work order, yes. There
6 is many of those.

7 Q. Over the years what specific projects did you
8 work on at the Saint Louis Park plant?

9 A. The biggest project I worked on at the Saint
10 Louis Park plant was the electrode pitch plant. That's
11 E-L-E-C-T-R-O-D-E. Because I know that was one of the
12 mistakes I had in your asking about did I sign my
13 deposition.

14 Q. What other projects did you work on at the
15 Saint Louis Park plant?

16 A. Well, a man under my direction changed the
17 stills from shell stills to fire tube stills. That is
18 the tar distillation units which was quite a change.

19 Q. Any other projects you remember? I'm just
20 trying to get a sense of all that you can remember
21 doing in Saint Louis Park.

22 A. Well, there were a lot of little projects
23 like moving tanks from one part of the plant to the
24 other and putting in lines from the refinery to the
25 creosote plant. That's about all I can remember.

1 There weren't too many projects at Saint Louis Park.
2 Those were about the biggest ones I worked on.

3 Q. Which were the tanks that you moved and why
4 were they?

5 A. They went out of the acid business and the
6 coal tar base business. I don't know when. Before I
7 ever went to Saint Louis Park. Probably right after
8 the war. There were a lot of tanks that were used for
9 those processes and some of them were moved to various
10 parts of the plant for other uses.

11 Q. How were they moved?

12 A. Bring in a rigger and pick them up and move
13 them and build a new foundation to set them down.

14 Q. Did you have any sense at the time when they
15 were moved how old these tanks were?

16 A. Well, if they were moved about in the early
17 '50's, say, and the plant was probably built -- I don't
18 know when the original creosoting plant was built.
19 About 1918 I think when this byproducts plant was built.
20 I don't know. Probably in the late '20's. So the
21 tanks were probably at the most 20 years old I would
22 say or maybe 30 years old.

23 Q. You were not on the property yourself
24 supervising the movement?

25 A. No. I never went to the property until 1950.

1 in the '50's.

2 Q. If you could I would like to direct your
3 attention to Minnesota Exhibit 9 which is a mockup of
4 the plant.

5 A. Um-hum.

6 Q. Do you think you could show us on Minnesota 9
7 where the tanks were moved from and to, if you can
8 recall?

9 A. Well, let's see here. Here's the refinery.
10 When was this made? Byproducts plant may be gone by
11 this time. Byproducts. Okay. Here. There were tanks
12 in this byproducts building. I think some were
13 probably moved over. Some of them are here.

14 MR. COYNE: Off the record for a minute.

15 (At this time a discussion was held
16 off the record.)

17 MR. HIRD: On the record.

18 BY MR. HIRD:

19 Q. Mr. Hennessy, when we were off the record I
20 believe you pointed to the area marked "byproducts
21 building" as the source of the tanks.

22 A. Right. Some tanks, yes.

23 Q. And that you pointed at the places to which
24 the tanks were moved to the refinery building area?

25 A. Correct. Correct.

1 Q. And to the area marked "retort"?

2 A. I think that's correct.

3 Q. Do you have any idea of approximately how
4 many tanks were moved?

5 A. Not very many because byproduct tanks are
6 small and we could only use large ones here.

7 Q. You're talking about less than ten?

8 A. Ten what?

9 Q. Less than ten tanks?

10 A. Oh, yes. Yes. Far less. Two or three.

11 Q. Two or three?

12 A. I don't know.

13 Q. Do you have any sense of their capacity?

14 A. No, I don't. They were tanks that could be
15 moved by a rigger though. They didn't have to be cut
16 apart and put back together again. They were not
17 field-erected tanks. They were shop-erected tanks.
18 They were small tanks.

19 Q. Was there any type of adjustment that had to
20 be done with their mechanism in order to put them back
21 into use or were they simply picked up and put down?

22 A. Well, of course, you have to put new guages
23 in them and you have to put -- I don't know whether --
24 I can't remember whether they put steam coils or steam
25 bayonets in them. They didn't just pick them up and

1 move them and pipe them up again. That's for sure.
2 For instance, all the tanks at the creosoting plant
3 either had to have steam coils or steam bayonets and
4 the tanks at the refinery had to have steam coils and
5 steam bayonets in them.

6 Q. I'm a little unclear about what a steam
7 bayonet is.

8 A. A steam bayonet is a way we made them. We
9 used a 6 inch pipe and put the full length of the tank
10 with a cap on it and then we ran the steam in a one
11 inch pipe inside the 6 inch pipe down to the end.
12 Steam came out against the 6 inch pipe and condensed.
13 And there was a steam trap outside the tank, the 6 inch
14 pipe extended through the tank, and it was flanged so
15 you could pull a bayonet in case you ever wanted to for
16 maintenance reasons. That's what it was. Just a steam
17 heater is what it was.

18 Q. Do you know whether the tanks were cleaned
19 out or emptied before they were moved?

20 A. They would have been emptied for two reasons.
21 I don't remember them being emptied because I wasn't
22 there. They would have been emptied for two reasons.
23 One so the rigger could move them. The second so that
24 we could weld on them. You wouldn't dare weld on a
25 tank with residue in it.

1 Q. Do you know what was in them and what was
2 done with that material?

3 A. No. I don't know what was in them. I don't
4 know what was stored in those tanks. See, the
5 byproducts building I had no experience whatsoever with
6 the byproducts buildings other than I saw the remains
7 when I went there in 1950.

8 Q. Who at the plant was involved with the
9 movement of these tanks?

10 A. Probably would be Mr. Larkin or Mr. Holstrom.

11 Q. No one beneath them, no one subordinate?

12 A. Holstrom I think was subordinate to Larkin at
13 that time. I'm not sure. I don't know. From there on
14 I don't know who was under them.

15 Q. This was done about when, the '50's I believe
16 you said?

17 A. Early '50's I think. Might have been the
18 late '40's.

19 Q. I believe you mentioned that you put in lines
20 at Saint Louis Park.

21 A. I didn't but they were put in, yes.

22 Q. That you worked on the putting in of lines or
23 provided engineering. What kind of lines were they and
24 where were they put?

25 A. The plant was built in 1918 I think, and at

1 that time the way they built tar plants is they built a
2 pit or they buried tanks in the ground and then they
3 had the oils that were condensed out of the tar went to
4 a header where the proper cut of oil was put into the
5 proper tank.

6 Q. By header you mean a sort of valve?

7 A. I mean a pipe with other pipes coming off of
8 it with valves so that you could put first cut in one
9 tank, second cut in another tank, third cut in another
10 tank, fourth cut in another tank. These lines flowed
11 by -- the oils flowed by gravity into the underground
12 tanks. About the early -- okay.

13 Q. If I could just stop for a minute to clarify
14 something. Are you talking about the tanks that would
15 be used after the refining process when you're dealing
16 with the various cuts that have been refined?

17 A.. These are receiving tanks, the first tanks
18 that are immediately after the condensers. In other
19 words, you condense the oil and the oil then flows into
20 a receiving tank. I'm talking about the receiving
21 tanks that received the oil from the pans.

22 Q. Okay. I'm sorry to have interrupted you. I
23 just wanted to be clear.

24 A. Then later in about I think it was the early
25 '60's we replaced all these ground tanks with

1 above-ground tanks. And we installed a pump and we
2 pumped the material overhead from the pans to the
3 above-ground tanks. They were vertical tanks above
4 ground.

5 Q. Why did you replace the existing below-ground
6 tanks?

7 A. Because water that floated -- some of them
8 when they weren't full tended to break the lines off
9 and make them leak. I don't know that it ever broke
10 them off, but it made them leak. So we replaced it.
11 They were in bad shape.

12 Q. How old were these --

13 A. How old?

14 Q. -- below-ground tanks? Had they been there
15 since --

16 A. They were put in about -- well, let's see.
17 The refinery was probably built about 1920, maybe '21.
18 I'm talking about '60. So they're 40 years old.

19 Q. So they were 40 years old. Did you ever
20 attempt to estimate how much of the cut was leaking
21 through the various tanks?

22 A. No, I never did. But when they started
23 leaking, why, we replaced them.

24 Q. When did it first come to the plant's
25 attention these tanks were leaking?

1 A. Well, when we started getting the refinery
2 flooded out and they started floating, floating up, why,
3 we noticed then that they were leaking.

4 Q. Would tar be found floating in the water that
5 was floating in the tanks?

6 A. It wasn't when I was there. Of course, those
7 tanks were still in place when I first went there.

8 Q. But did people at the plant observe tar
9 floating in water around the floating tanks?

10 A. Well, they observed that the tanks were
11 leaking, yes. I don't know how they observed it. But
12 they observed that they were. That is, the piping to
13 the tanks, the connections to the tanks were leaking.

14 Q. They didn't observe the tanks themselves leak?

15 A. No. Not the tanks themselves, no.

16 Q. Then why were the tanks change as well as the
17 piping?

18 A. They were in a mess. I mean, you know, they
19 just tended to float up and the piping was holding them
20 down. Bent them and everything else.

21 Q. Was it likely that they were in a situation
22 that if they weren't actually leaking they would be
23 about to leak because of --

24 A. Well, I think so. It's hard to say. See, I
25 wasn't down in the tanks examining them, but I

1 understand that where the pipes connected to the tanks
2 the tanks were bent.

3 Q. Who did you talk with? Who was your contact
4 at the plant to deal with the piping and the tank issue?

5 A. Oh, I think the man running the refinery at
6 that time was Monroe Brown and the plant engineer, what
7 was his name? I can't remember.

8 Q. Paul White?

9 A. No. It was before Paul White I believe. I
10 can't remember.

11 Q. What would be the typical useful life of a
12 storage tank to be used to receive --

13 A. Well, of course, in the tar industry we're
14 more fortunate than the petroleum industry because
15 vertical tanks -- well, our tanks rust out at the top.
16 Petroleum industry tanks rust out at the bottom. So
17 quite often our tanks can be repaired.

18 Q. But in an underground tank it would rust out
19 at the top, but that would be just below ground level?

20 A. Yes. Right.

21 Q. Would that be observable from ground level?

22 A. Not if it was buried, no.

23 Q. Were these tanks buried?

24 A. I understand these were buried, yes. They
25 were not in a pit. They were buried.

1 Q. What work did you do specifically with
2 respect to the lines?

3 A. Well, a man under my direction designed new
4 lines and they were put in.

5 Q. Who was this man?

6 A. Ruddy Fenoglio.

7 Q. Did he go to the plant to oversee the --

8 A. Yes.

9 Q. -- installation?

10 A. Yes.

11 Q. This was approximately when?

12 A. In the late '50's I would say, maybe early '60's
13 somewhere around there. Be over 20 years ago I think.

14 Q. Well, I appreciate your memory and I realize
15 that it's going back quite a ways but it helps us. See,
16 we're not there to get a sense of the whole thing.
17 When we were talking about the work orders, you
18 mentioned that there was, of course, a local limit and
19 a plant manager could spend below the local limit.
20 Would a plant manager who spent below the local limit
21 on some sort of repair or project in connection with
22 the plant generally send a memo to Indianapolis
23 notifying Indianapolis of that or was it done --

24 A. Sure.

25 Q. -- without --

1 A. I'm sure he had to account for all the monies
2 he spent. But, you know, he could do it. He could do
3 this of his own judgment.

4 Q. What was involved in the changing of the
5 stills that you mentioned you were more concerned about
6 or concerned in at Saint Louis Park?

7 A. The stills were built in I guess '21 or '22.
8 And the way they built them they had a still which was
9 essentially a big cylinder with pans in it, and they
10 had brick work all the way around it, and they fired in
11 the brick work so that the heat went through the shell
12 of the still. The tar was just like in a big pot. It
13 boiled and then scrapers came over and were condensed.
14 All right. We changed that. We went into a fire tube
15 still. What we did is we put fire tubes in there. We
16 took all the brick work out. Just took it all out. No
17 brick work. We had a still which was insulated on the
18 outside and the ends were insulated and we had fire
19 tubes in. We had pipes that went in the still and came
20 back out again. So you'd fire into the pipe and the
21 heat from these pipes would boil the tar in the still.

22 Q. Did you have to replace any connecting piping
23 or just simply the stills in this process?

24 A. Well, we had to reconnect all the burner
25 piping, of course, because they were entirely different

1 types of burners. The other piping on top of the
2 stills I think we removed the piping in order to tear
3 out this old setting. I'm sure we had to do that. We
4 put new piping back in over the stills, pretty sure,
5 because then there was a platform for people to work on.
6 They couldn't work on this insulation. We had walk
7 ways on top of the stills where people could get to all
8 of the valves whereas with the old one you could walk
9 on top of it, but you couldn't walk on these.

10 Q. Was this the Lesher still?

11 A. Yes. Right. Wait a minute. Well, I don't
12 know. Let's call it the Lesher still. The still
13 evolution there were -- okay, this was the third, step-
14 mark three you might call it. We'll call it the Lesher
15 still. I always think of mark two as the Lesher still.

16 Q. I don't want to put a label on it that
17 doesn't belong. I've just heard the phrase "Lesher
18 still" used.

19 A. That's a good term. Let's use it. He
20 developed it when I was in the engineering department.

21 Q. This still change was accomplished at what
22 time was it done?

23 A. Let's see. I think early '60's.

24 Q. Did you change all 17 of the plant stills?

25 A. No. We only used four at that time. See,

1 the other stills were torn out years ago. The 17th
2 still was still there but it was never used. I mean,
3 it hasn't been used since I don't know when. Not when
4 I'd been to the plant. But stills 13, 14, 15 and 16
5 were changed to Lesher stills.

6 Q. This was the change that you were talking
7 about?

8 A. Yes. Right. Um-hum.

9 Q. What had happened to those stills 1 through
10 12?

11 A. They were raised to make way for the pitch
12 pans. The electrode pitch plant we built. See, the
13 refinery had a firewall and stills 1 through 8 -- I
14 think 1 through 8 was on one side of the firewall and 9
15 through 16 was on the other side of the firewall. We
16 tore out all the stills on the south end of the
17 firewall and put in our pitch equipment in that big
18 empty room.

19 Q. So you tore out stills 1 through 8 --

20 A. Yes.

21 Q. -- for the pitch equipment?

22 A. Right.

23 Q. What would have happened to stills 9 through
24 12? Were they still in operation at the time you put
25 in these new stills 13 through 16?

1 A. I don't know. They may have been. But after
2 we put in stills 13 through 16 I'm sure I think they
3 were torn down because the new stills were more
4 efficient and were faster. You could turn the tar over
5 faster in them.

6 Q. So you would only operate about four stills
7 at a time?

8 A. We only operate four stills at a time. That
9 easily took care of the plant.

10 Q. You briefly referred to still 17. What was
11 its situation? Was it used for a special purpose?

12 A. Still 17 was used years ago for some special
13 process. I don't know what it was. I couldn't tell
14 you. That was called the Edwards still. What it was
15 used for I couldn't say. I don't know.

16 Q. So by the time you became involved with the
17 Saint Louis Park property still 17 was --

18 A. Still 17 was just a monument. Just sitting
19 there. Hasn't been fired in years.

20 Q. Was there a plaque in front of it?

21 A. No. No plaque.

22 Q. Prior to the time that you installed the new
23 stills 13 through 16, had the plant been operating on
24 just four stills or were they using all of 9 through 16
25 or --

1 A. They could have been operating on four. They
2 could have been operating on 6 because I'm sure stills
3 8 through 12 -- I'm sure two of them were at least
4 completely inoperable. But the other two -- they may
5 have operated 6 of them. I don't know. But after we
6 had fire tube stills in there, the four fire tube
7 stills, that's all that were ever fired.

8 Q. Now, you mentioned tearing down stills 1
9 through 8 to make way for the electrode pitch plant.
10 What different type of equipment did you install when
11 you created the electrode pitch plant and how did it
12 differ from the still structure?

13 A. Well, we found out that an elevated pan could
14 be turned over I believe in two days, in 48 hours. So
15 what we did is we built two big pans and every 24 hours
16 dug one pan and one pan was enough to load a car. I
17 believe that's correct.

18 Q. About what were the dimentions of these pans?

19 A. Oh, boy, I don't know. But they held about --
20 if you wanted me to make a guess, I don't know, they
21 held somewhere around 40 tons of pitch I would say.

22 Q. A piece?

23 A. A piece, yes.

24 Q. How would they be used? And forgive me if I
25 show my ignorance of these processes. How would the

1 pitch manufacturing differ from the tar refining in
2 terms of the processes that would go on in these pans?

3 A. The pitch production is part of tar refining.
4 In other words, back during the war and before the war
5 creosote oil -- the distillate was the thing you made
6 your money on. So they tried to distill the tar in
7 such a way as to get the most distillate possible.
8 Then when they built all these aluminium plants and
9 needed all this electrode pitch then the residue part
10 of it got to be the money making part of the business.
11 So we distilled tar in such a way as to get as much
12 residue as possible. That's the difference right there.

13 Q. I see what you're saying. What you mean by
14 distillate you mean the early cuts as part of the tar
15 refining process whereas the residue is what you have
16 remaining?

17 A. The electrode pitch was from the residue and
18 the creosote oil was from the distillate, right.

19 Correct.

20 Q. You installed these two elevated pans about
21 when, what time?

22 A. In the early '50's, '51, '52, somewhere in
23 around in there.

24 Q. How long did they operate?

25 A. I don't know. They were operating the last

1 time I was there which was probably about '59 or '60,
2 but they operated as long as the company had the
3 business selling electrode pitch. I don't know. I
4 don't when they ceased operation.

5 Q. Is electrode pitch the same thing as hard
6 pitch?

7 A. Well, electrode pitch yes and no. Electrode
8 pitch is harder than roofing pitch but it's less hard
9 than coal pitch. See, there is all kinds of products.
10 Electrode pitch has a softening point of about 100
11 degrees C. So whether you call that a hard pitch or
12 not I don't know.

13 Q. Is there any particular type of pitch that
14 would be generally called hard pitch?

15 A. I myself if someone asked me what a hard
16 pitch was, of course I don't know, but I would say I
17 think anything over a roofing pitch is a hard pitch. A
18 roofing pitch is a soft pitch. I don't know. Maybe
19 somebody else would say no, that's not right.
20 Electrode pitch is not a hard pitch. I don't know. To
21 me that term is a matter of opinion I guess. I don't
22 know if those terms are used. Maybe they are. I don't
23 know.

24 Q. I think we encountered the term and have been
25 a little bit confused about its meaning which is why

1 I'm asking.

2 A. I see.

3 Q. Were you actually on the plant as part of the
4 installation of these two elevated pans or the
5 preparation?

6 A. Yes. Off and on I was there, yes.

7 Q. Was this the first project that brought you
8 to the plant premises?

9 A. Yes.

10 Q. Can you recall any other projects that you
11 worked on in the Saint Louis Park sites?

12 A. Yes. We expanded the electrode pitch and
13 built a third pitch pan in a pole barn. I was there
14 for that.

15 Q. When was the third pitch pan installed?

16 A. I would say, again I'm guessing, between 1955
17 or '56 and 1960, somewhere around in there.

18 Q. What is the coal barn? Is that just a
19 storage area?

20 A. Pole barn is just a cheap building to house
21 something. In other words, we didn't want it raining
22 on this thing. So pole barn is a building supported by
23 telephone poles. You put your creosote and put them in
24 the ground and put trusses over and build a roof over
25 it and bring sides down to below the top of the pan.

42
1 Q. This pole barn would be installed over the
2 three elevated pitch pans?

3 A. No. Over one. Over the last one. See, the
4 first two pans were built when the old stills were in a
5 brick building.

6 Q. I see.

7 A. Then the third one there wasn't any more room
8 in this building for the third one so we built a pole
9 barn to house it.

10 Q. That you said was the late '60's?

11 A. Late '50's.

12 Q. Late '50's. I'm sorry.

13 A. That's as close as I can guess.

14 Q. I hate to continue to strain your memory to
15 think for projects, but it would help me a great deal
16 if we could just make sure that we touch on all the
17 projects you were involved with there. Can you think
18 of any other projects that you did at Saint Louis Park?

19 A. The only project that was done under my
20 direction or I was directly in charge were three
21 electrode pitch pans and converting the stills to
22 Lesher stills. What else was there? Oh, getting rid
23 of underground tanks and replacing with above-ground
24 tanks, with above-ground piping and a pump to pump it.
25 The only other thing I can remember is we built a tank

1 at the creosoting plant. I don't know when that was.
2 My only involvement there was -- the tank was already
3 available. I don't know where they got it. But I had
4 to design a piling foundation for it because all those
5 tanks and the creosoting and everything was on a piling.

6 Q. What was the purpose of this tank?

7 A. It was just one of the creosote working tanks.
8 I don't remember whether that was used for tar-oil
9 mixing or whether it just held a certain cut of
10 creosote. I think it held some of the oils that were
11 used in the treating.

12 Q. I gather from what you said it was an old
13 tank and you needed to pile it?

14 A. It was an old tank but it was in good
15 condition. The piling was to hold it up. You couldn't
16 built a foundation on the ground or it would sink. The
17 ground was terrible there.

18 Q. What was the capacity of this tank, if you
19 recall?

20 A. If I had to guess I'd say 40,000 gallons,
21 maybe 30,000 gallons. It wasn't a real big tank.

22 Q. Just to avoid confusion, I'm not sure whether
23 when you talk about processes here you're referring to
24 my earlier distinction between a process as something
25 new that was installed in a plant or repair work or

1 correction in existing processes. Was there any type
2 of corrections in existing processes that you got
3 involved with at Saint Louis Park over the years that
4 may not have been in your previous list of items that
5 you've done?

6 A. I can't think of any.

7 Q. Okay.

8 A. I won't say there weren't any, but I sure
9 can't recall any.

10 Q. I appreciate your doing that. Mr. Hennessy,
11 I believe you mentioned when we last met that you were
12 assigned as a detail engineer to the installation of
13 the oil-water separator.

14 A. That's correct. That was back in about '41 I
15 think. '40. '40 or '41.

16 Q. When I reread your transcript I think there
17 was a reference there to the idea that designing an
18 oil-water separator was the kind of thing that you'd
19 assign to a detail engineer or a guy right out of
20 college, something to that extent. Did you have the
21 primary responsibility of this design at that time?

22 A. I had the primary responsibility of the
23 structural design of it. I didn't have the primary
24 responsibility of what was going to be built at that
25 time or how we were going to operate our disposal

1 facilities, no. I was given the job of designing a
2 separating basin as I remember. And of course, I just
3 went on previous experience which was all we had at
4 that time.

5 Q. When you said that you were assigned the
6 responsibility of the structural design, would that
7 include the type of materials used to construct the
8 settling basin or just simply the dimensions of it?

9 A. Well, I was more or less involved in, you
10 know, if the basin's ever emptied, why, it's got to
11 maintain the soil pressure and the soil wasn't too good
12 when it's full of water. It's got to keep the water in.

13 Whether I picked -- it was made with tongue and groove
14 lumber. Whether I specified that or whether I was told
15 to use it I don't remember. But that's what was used.
16 But anyway, I did the structural design on the basin.

17 Q. You said what you had to go on was previous
18 experience. Do you mean your previous experience or
19 previous Reilly?

20 A. The company had these basins. I think this
21 was before the days of the API settling basin. I never
22 heard of an API settling basin until later. We had
23 creosoting plants at various parts of the county, and
24 they separated oil from water with a separating basin
25 which is not too hard to do really.

1 Q. Did you visit their plants and look over the
2 basin or see plans?

3 A. I saw physically the Indianapolis plant and
4 looked over their basins, yes. That was probably our
5 biggest creosoting plant.

6 Q. You had the plans of earlier basins to work
7 from when you were designing --

8 A. Yes. I didn't copy them, but I did have
9 plans to base my design on.

10 Q. What was Mr. Horner's involvement in the
11 design of the settling basin?

12 A. I can't remember whether he was the man that
13 personally did the design or whether someone else did
14 it and then I was given -- see, we had several -- I was
15 the least experienced engineer in the department at
16 that time. I was low man on the totem pole. I suspect
17 that he did do it, but I can't swear that he did.

18 Q. What would he have given you that you would
19 start to work from? Would he have given you -- I'm a
20 little built confused in terms of --

21 A. I'm confused too. I'm trying to remember. I
22 think what he told me to do was build it out of tongue
23 and groove creosote lumber, do the structural design,
24 and have a one hour retention time for the maximum
25 amount of flow which is what I remember is what I did.

47
1 Q. Did he give you any plans or specifications
2 or did he just give you oral instructions?

3 A. Oral instructions.

4 Q. Did he review your plans afterwards?

5 A. Did I review?

6 Q. Did he review them after you completed them?

7 A. I'm sure he did, yes.

8 Q. Do you remember him sending you the plans
9 back for any corrections or changes?

10 A. I can't remember that, no. I ought to
11 remember it because in those days we did our own
12 drafting. I actually did the drafting on the job too.
13 But I can't remember any major -- well, there may have
14 been. That's not saying there weren't any. I can't
15 remember.

16 Q. Do you know whether he oversaw the
17 installation of the settling basin at the Saint Louis
18 Park site?

19 A. No, I don't.

20 Q. Do you recall talking with anybody while at
21 Saint Louis Park about the settling basin, why you were
22 involved in its design?

23 A. No. I would have remembered that because Mr.
24 Larkin was plant manager and I don't believe I ever
25 talked to Mr. Larkin. I can't ever remember talking to

48
1 him.

2 Q. Would you have talked to anyone below the
3 plant manager level that you can recall?

4 A. I can't remember if I did.

5 Q. At the time Mr. Horner gave you the
6 assignment of doing the structural engineering work on
7 the oil-water separator, had he been to Saint Louis
8 Park and seen the problem and described to you anything
9 about the terrain and the nature of the drainage at
10 Saint Louis Park?

11 A. I can't remember. All I remember is I was
12 told what to design and I designed it. But I can't
13 remember whether he made a trip to the plant or not.
14 He certainly seemed familiar with it.

15 Q. So the instructions that you remember is
16 design a settling basin, perhaps he said use tongue and
17 groove lumber, and the only other specific instruction
18 you recall is a one hour retention time?

19 A. I think that's correct.

20 Q. What factors did you have to take into
21 account to achieve the one hour retention time?

22 A. We had a graph showing the flows through the
23 plant effluent system and it was hourly for 24 hours
24 for a number of days, and we picked the maximum flow
25 that we had in that time and designed it for a one hour

1 retention time. I'm pretty sure that's what we did.
2 Designed it for one hour retention time.

3 Q. Was this a graph based on Saint Louis Park
4 drainage or is this sort of a general graph with
5 drainage rates?

6 A. Back in those days there was a sewer which
7 later was changed to a ditch, but there was a sewer and
8 the man that did it measured the flow in this sewer.

9 Q. I'm sorry. Measured the flow into the sewer?

10 A. Measured the flow through the sewer, yes.

11 Q. At Saint Louis Park?

12 A. Yes. Um-hum.

13 Q. Do you have any idea who the man who did it
14 was?

15 A. No, I don't.

16 Q. Was it a Reilly employee --

17 A. Probably was.

18 Q. -- at the plant?

19 A. Um-hum. Of course, this is an easy thing to
20 do with a weir, you know. A lot of ways of doing it.

21 Q. How do you do it with a weir? I apologize.
22 I'm not that experienced technically so I'd appreciate
23 your sort of experience.

24 A. Run the water over the weir and then you
25 measure the height of the water over the weir and that

1 tells you how much water is flowing over it if it's
2 designed properly. It's fairly easy to do.

3 Q. Did Mr. Horner design the weir?

4 A. I don't know who designed the weir. I know I
5 designed I designed the straw filters that were put in.
6 I don't know that Mr. Horner designed a weir at that
7 time. I don't even know how they measured it. There
8 are all kinds of ways of measuring flow of water.

9 Q. So you had a specific figure about the water --

10 A. Um-hum.

11 Q. -- volume coming through?

12 A. Yeah.

13 Q. At what time of year was that measurement
14 made?

15 A. I don't remember. I think it was -- I would
16 guess it was in the winter time. I don't know.

17 (At this time a discussion was held
18 off the record.)

19

20 (At this time a recess was held.)

21 BY MR. HIRD:

22 Q. If I can take you back for just a minute, I
23 think when we were talking about the tanks I asked you
24 a question about the useful life of the tanks. And I
25 believe your reply was that generally in the tar

51
1 refining industry tanks rust at the top, whereas in the
2 petroleum industry they rust in the bottom. It just
3 occurred to me that it might be useful if you had any
4 sense of the specific useful life and the number of
5 years that one would expect a tank to last when one
6 would put in a new tank of the kind of materials that
7 these tanks were made.

8 A. Well, we got tanks -- of course, it depends
9 on what you store in them. We have tanks that are 50
10 years old that are still sound, not leaking.

11 Q. Is there a projected useful life when one
12 would install a new tank?

13 A. I would say 50 years. I'm guessing again.
14 But that's what I would say if someone asked me that
15 question that's what I'd say, 50 years, depending, of
16 course, on what you're going to put in it.

17 Q. For tar refinery?

18 A. For tar refinery, yes, because actually a lot
19 of the stuff you put in tanks, for instance, enamel
20 actually protects the tank. We make pipeline enamel.
21 They coat underground pipelines with that to protect
22 the pipe from corrosion. If you got a tank full of
23 that stuff why, you know, it should except for rotting
24 from the outside and that takes for years, you know, if
25 you keep it painted there is no problem at all. That

1 tank would last a lot longer than 50 years.

2 Q. Was there this type of enamel in the tanks at
3 Saint Louis Park?

4 A. No. I'm just saying why it's difficult to
5 say what the life of a tank would be.

6 Q. Would underground tanks tend to have a
7 shorter useful life than above-ground tanks?

8 A. I don't believe so because the underground
9 tanks were used in our company for receiving distillate
10 from condensers and probably they would rust from the
11 inside. I don't know. It depends. They might be
12 effected from corrosion on the inside as quickly as
13 from the outside. It's hard to say.

14 Q. What would corrode them from the inside?

15 A. Well, I think your wet cut would certainly
16 corrode a tank on the inside, and I think any tar acids
17 in the creosote oil would work on it, very weak acid
18 would work on it I think.

19 Q. What would be the corrosion from the exterior?

20 A. Just plain old, you know, you paint the tank
21 when you put it in but after awhile, why, the ground
22 water would eventually eat through the paint and start
23 attacking the steel and start causing pitting.

24 Q. Would it be usual to dig them up every so
25 often to repaint them?

1 A. No. No. No.

2 Q. In other words, the first time you ever dig
3 them up would be to take them out?

4 A. Yes.

5 Q. Whereas above-ground tanks you can repaint on
6 a more frequent basis?

7 A. Um-hum.

8 Q. Returning your attention to the oil-water
9 separator, you mentioned that you figured out what one
10 needed for the one hour retention time on the basis of
11 a flow measurement coming through the sewer at Saint
12 Louis Park. What kind of a sewer was this?

13 A. It was just a tile sewer which now is a ditch,
14 but it ran under the yard, under the tracks, to the
15 west side of the plant then down the west side of the
16 plant to the fence line and along the fence line to
17 where it crossed under Walker Street.

18 Q. Referring your attention again to Minnesota
19 Number 9, is the dotted line that is going from, say,
20 the point marked south of hay filter down to the lower
21 left-hand corner and around the bottom the sewer line
22 that you're referring to?

23 A. Yes. That used to be a sewer line. Then it
24 was a trench. It's shown there as a sewer line.

25 Q. It was a sewer line about the time that you

54
1 designed --

2 A. Early '40's I was told it was a sewer line,
3 yes.

4 Q. By whom, Mr. Horner?

5 A. I suppose, um-hum. People that were familiar
6 with the plant told me it was a sewer line.

7 Q. Was it enclosed or was it simply open tile
8 which water came through?

9 A. It was buried, buried tile I'm sure. It had
10 to be because it was in the yard where all kinds of
11 equipment runs and that's probably, I don't know, I'm
12 guessing, it's probably why they dug it up.

13 Q. Was it buried all the way down along the line?

14 A. Sure. My understanding is it was. I
15 couldn't swear to that but I believe it was. The first
16 time I saw it it was a ditch.

17 Q. When was the first time you saw it?

18 A. Early '50's when I made a trip.

19 Q. The whole length was a ditch?

20 A. I believe it was. As I remember it was a
21 ditch. I don't know.

22 Q. So in between the time that you designed the
23 oil-water separator and the time you actually saw the
24 system somebody had dug it out?

25 A. I think so. I remember it was a ditch. I

1 don't know. I could be wrong.

2 Q. Do you have any recollection of who dug it
3 out or when it was dug out?

4 A. No. No. Huh-uh. No, I don't.

5 Q. Would it have been Reilly people who had dug
6 it out?

7 A. Probably.

8 Q. Would that be the kind of thing that would be
9 involved, any expenditure of monies or just simply
10 sending a work crew with shovels?

11 A. Well, as I say, it wouldn't cost much to dig
12 it out.

13 Q. Would it be something that the plant would
14 have been likely to have consulted Indianapolis on
15 before doing or something that they would have done on
16 their own?

17 A. I don't remember ever being consulted about
18 it.

19 Q. Would it necessarily have involved
20 consultation of the engineering department or could
21 they have just consulted Mr. Reilly or the equivalent
22 of the finance committee?

23 A. I don't know if they consulted anybody. They
24 may have just dug it up. I don't know.

25 Q. I wonder if I could ask you to play draftsman

1 again --

2 A. All right.

3 Q. -- to draw me a diagram of the oil-water
4 separator that you designed.

5 A. Oh, boy.

6 Q. Would you like a finer point pen?

7 A. This is going to be very rough. Actually all
8 it was, I can't remember the dimentions, but all it was
9 was a box. Looking at the top it would look something
10 like this. Here's the ground level here. Something
11 like this, you know. The water level would be
12 somewhere in here. There would be baffles. Let's see
13 now. I believe we had baffles like this. So this
14 would be the top of it. I don't know where the baffles
15 were. It's been so long I can't remember. There was
16 definitely -- I believe these baffles overlapped like
17 this. Up here there was another baffle about here so
18 that light oil would be skimmed off here and skimmed
19 off here. Let's see. How did this work? This then
20 went to a sump I believe. This went to a sump which
21 pumped it out. The heavy oils would collect in here
22 like that. The light oil would collect here and here
23 and here. Okay? And the flow would be like this.
24 That's as I remember it.

25 Q. Okay. Please don't put your pen down for the

1 moment because I'm going to ask you to identify a
2 little bit more. First of all, this block on the top,
3 is that part of the equipment or is that --

4 A. This is the width. I don't remember what it
5 was. This is the width and this is the length of the
6 basin. This is a plan here.

7 Q. So there are two different views of the same?

8 A. Yeah. This baffle would be down here under
9 the water. This baffle would be across here. And this
10 baffle would be down under the water there. You
11 wouldn't see these two baffles by looking down.

12 Q. So this would be the top?

13 A. The top here's where you come out. Right.
14 Aerial view.

15 Q. Could you write "aerial view" over here?

16 A. Plan means you're looking down. This is
17 what's called an elevation or side-view.

18 Q. Could you write "elevation" on that, please?
19 Now, the water I understand on both of these drawings
20 is coming in from your left-hand side of the page,
21 correct?

22 A. Correct. I believe what happened is it was
23 pumped through a pipe which went like that. The water
24 came out here. Well, it wouldn't be that close to the
25 wall. It would be out over here. Sort of spread it

1 out a little. A baffle and a baffle here. I guess
2 this baffle would be pretty close to this distillage,
3 you see, so you wouldn't get currents throughout the
4 whole thing.

5 Q. I'm going to ask you to kind of identify the
6 pieces of your drawing so that if we refer to it later
7 we could know. So could you mark what are baffles and
8 mark what is the pipe by writing "pipe" or "baffles"
9 next to them so that people will have it clearly
10 indicated?

11 A. This brings back old memories of years ago.
12 I better put "light" on there. Okay. This is your
13 effluent. This is a sump. Here's a pump down here
14 pumping it out to the sewer. This is your sewer.
15 Something like that.

16 Q. That point would be what?

17 A. This is your contaminated water influent or
18 water to be treated. This is influent let's call it.

19 Q. In the plan view could you just mark the
20 baffles so I can be clear? I see they correspond.
21 They're vertically on top of the other one?

22 A. That's right. Then these two are heavy oil
23 baffles. I don't know whether I got the exact number
24 of baffles right, but this is the general idea. There
25 were at least that amount.

1 Q. At least four?

2 A. At least four, yes, I'm sure there were.
3 This would be light oil baffle. There you go.

4 MR. HIRD: Could I have this drawing
5 marked as United States Exhibit 2, please?

6 (At this time United States Deposition
7 Exhibit 2 was marked for identification by
8 the Court Reporter.)

9 BY MR. HIRD:

10 Q. Could you give an explanation referring to
11 the United States Exhibit 2 of exactly how the process
12 worked, how the oil and water separator would work
13 starting at the influent and going through the end?

14 A. All right. We have very much more heavy oil
15 than we do light oil. So most of the oil settles to
16 the bottom. Okay? The oil that settles to the bottom
17 is periodically pumped out to a tank and recovered and
18 reused. The oil that settles out to the top is skimmed
19 off. It is skimmed off and pumped to another tank and
20 reclaimed. Then only the oil that escapes through here
21 is all that's in the effluent.

22 Q. So by coming in through the influent pipe the
23 contaminated water would first hit the settling baffle?

24 A. Distilling. See, you don't want to set up
25 currents in this thing or it will inhibit the settling.

1 You want it to be very still. Really your settling
2 basin is from here on, not here. This is your one hour
3 retention time right there.

4 Q. So the one hour retention time is between the
5 stilling baffle and the heavy oil baffle?

6 A. Well, yes, I think so, distilling. In this
7 case I believe it was.

8 Q. So at the time where it hit the stilling
9 baffle it would essentially quiet down the movement?

10 A. Yes.

11 Q. Then at the heavy oil baffle the idea would
12 be that the heavy oil would come up against this baffle
13 and not continue to progress through the separator?

14 A. Yes.

15 Q. Then you would come to the light oil skimming
16 baffle?

17 A. That's this.

18 Q. At which point the light oil would --

19 A. Flow.

20 Q. -- float against the barrier created by the
21 baffle and not float any more?

22 A. Um-hum.

23 Q. This would be a second heavy oil baffle?

24 A. I believe we had two heavy oil baffles.

25 Q. So the retention time would be between the

1 stilling baffle and the second heavy oil baffle?

2 A. Right. This was just a -- well, we would
3 collect heavy oil in there.

4 Q. You wouldn't collect heavy oil in the area
5 beyond the second heavy oil baffle?

6 A. Yeah, you would. I think you would probably.
7 Yes, I think you would.

8 Q. Okay.

9 A. I may have drawn this wrong. I think maybe
10 this level would be higher and this level would be
11 higher than this level. I think I got my levels
12 backwards.

13 Q. If you'd like to correct the water level on
14 U.S. Exhibit 2 please do so.

15 A. Why don't I just do this. Of course, depth
16 doesn't mean anything. It depends on how often you
17 pump it out. This would be less and I believe this
18 would be less yet.

19 Q. So these upper lines --

20 A. That's the heavy oil.

21 Q. That's the heavy oil level?

22 A. Yeah. This may be a gross exaggeration.
23 This may only be 6 inches deep or nine inches deeper.

24 Q. Could you just mark a line saying "heavy oil
25 level" just so it's clear? The problem is this may be

1 | relied on and used later on and it makes it convenient
2 | for people if it is clearly marked now. Thank you.

3 | A. The depth of this I'll just put a question
4 | mark because I don't know what it is.

5 | Q. How was in your design the light oils that
6 | would float on the top, how would they be skimmed off
7 | after they hit the skimming baffle? How would they be
8 | taken out of the system?

9 | A. I believe in this one we had a pipe which was
10 | right here. Let's see. Come to think about it, that's
11 | right. We controlled the level. This baffle goes all
12 | the way up to here. That's right. It overflows.
13 | Right. This acts as a heavy oil baffle. That's okay.
14 | But it also controls the level of the thing.

15 | Q. So it controls the level of the light oil?

16 | A. It controls the level so that the oil's
17 | always being skimmed off here.

18 | Q. What would be used to skim it off? How would
19 | it be taken out of the system?

20 | A. Just a pipe right there. It would flow
21 | through this pipe to a sump.

22 | Q. So you would have a pipe lying on the surface --

23 | A. Yes.

24 | Q. -- of the water that would go to --

25 | A. Um-hum.

1 Q. You designed that pipe as well when you
2 designed the system?

3 A. I'm sure I designed the whole thing, yes.
4 The structural part of it I designed, yes.

5 Q. So that would include those pipes?

6 A. Um-hum.

7 Q. Now, in terms --

8 A. Sumps, whole works.

9 Q. In terms of the heavy oil that stayed at the
10 bottom, I think you mentioned that there was a pump
11 that was used to get rid of the heavy oil. Where was
12 that pump located and how did it work?

~~13~~ A. I don't remember where it was located, but
14 I'm sure it was right adjacent to the pit and there
15 would be a pipe connected like that and there would be
16 a pipe connected like that. This sump -- well, I'm
17 sort of drawing over it now. The sump would be on this
18 side of it.

19 Q. I'm sorry. Sump or pump?

20 A. Sump and a pump. And say there would be a
21 pump here and this then went to a tank in the treating
22 building, treating area.

23 Q. So by sump there would be a lower bottom
24 right here?

25 A. It had to be lower so the heavy oil could

1 flow into it.

2 Q. Was there something similar? You had the
3 second heavy oil baffle.

4 A. No. Because here all you're worried about is
5 this level. You're just taking water from the middle
6 of the thing and pumping it out and this actually
7 pumped in slugs I believe. What it did is it had a
8 high-level and a low-level. The level reached this
9 area, the pump would come on and pump it down to there
10 and then it would fill up here and the pump would go
11 off when it got to that level.

12 Q. Could you mark those levels with an "A" and a
13 "B" that you were just referring to? So "A" would be
14 the upper level and "B" would be the lower level in
15 terms --

16 A. Yeah. "A" is high-level.

17 Q. Could you mark the sump back near the heavy
18 oil baffle, the first heavy oil baffle? There would be
19 a pump in that sump as well?

20 A. I believe there was. Now, whether it was
21 this kind of pump or whether it was a steam pump --
22 back in those days they used a lot of steam pumps that
23 could lift. There might have been a steam pump right
24 beside there with a pipe; but regardless of what it was,
25 it was a pump that pumped from this level up. Back in

1 those days, back in the early '40's, we used an awful
2 lot of steam pumps because you could lift with them.

3 Q. I believe you mentioned that the concept was
4 to have the heavy oil recycled.

5 A. Yes.

6 Q. Would that be put back into the tar refining
7 process or what would be done with it?

8 A. I believe we have a lot of treating material,
9 materials you treat with, like you have plain creosote
10 oil, plain tar, tar-oil mixtures. I believe this could
11 have been used in some of the tar-oil mixtures.

12 Q. What were the tar-oil mixtures used for?

13 A. Used for treating, you know.

14 Q. Wood treating?

15 A. Yes. Various customers have different
16 specifications for treating their material.

17 Q. So would the heavy oil that was taken off be
18 evaluated in terms of its contacts after --

19 A. I'm sure after it was in a tank, yes.

20 Q. So this pump that pumped off the heavy oil
21 would lead to a tank where plant people would be likely
22 to evaluate --

23 A. That's correct.

24 Q. -- the content --

25 A. Um-hum.

66
1 Q. -- and the quality of the oil and to see
2 where it would be used again?

3 A. Um-hum.

4 Q. Would they be likely to keep records of
5 quality of the oil that would come from the heavy oil
6 pumped off as part of their evaluation?

7 A. I'm sure they kept records for a short time
8 because they'd have to know what they were going to do
9 with it. The plant manager would have to give
10 instructions to somebody to treat it or mix it with
11 something. Now, after it was used I don't know why
12 they would keep those records. I mean, what would be
13 the point?

14 Q. Would this heavy oil always be useful or
15 would it be likely in certain circumstances not to have
16 the specifications that would make it useful in the
17 process?

18 A. Unless it's had a lot of dirt washed in with
19 it, it would be useful, yes, if it came from our
20 treating operations only.

21 Q. Would that be only the wood treating
22 operations? What if it came mixed with oils that were
23 a product of the tar refining operations? Would it
24 then be useful?

25 A. Yes. It would be mixed with creosote oil or

1 something like that. See, all our distillate came --
2 well, not all of it, but most of the distillate we used
3 for treating operations came from our own refinery.

4 Q. So it wouldn't matter if you had a mixture of
5 refinery waste water and treating plant waste water in
6 terms of the oil that was available?

7 A. If they meet the customer's specifications
8 for the oil by using it, they would use it, yes.

9 Q. What would happen if they couldn't meet the
10 customer's specification?

11 A. Then it would go back to the tar tank and be
12 pumped back to the refinery and be redistilled.

13 Q. What about the light oil that came through
14 the pipe at the top of the oil-water separator? What
15 would happen to the light oil?

16 A. I really don't know what happened to it.

17 Q. Is it useful at all?

18 A. Oh, yes, it's useful. Sure. It came from
19 our creosote operation. There is very little light oil
20 if I might add. The amount of heavy oil was far
21 greater than the amount of light oil.

22 Q. What would happen in this oil-water separator
23 to oil that had a specific gravity that was close to
24 that of water?

25 A. It wouldn't separate very well. But since

1 our oils had a specific gravity of, I don't know,
2 something like 1.1 or 1.15 or something like that, they
3 were much heavier than water.

4 Q. Would there be a proportion of the oil that
5 would come out of the plant that would have a specific
6 gravity equal to water or very close to water?

7 A. Very little. For instance, any petroleum oil
8 that would get in there would have a specific gravity
9 of less than 1. For instance, oil that's used to
10 lubricate air compressors would get in there.

11 Q. Would that have a specific gravity close to 1?

12 A. It would be less than 1. I don't know how
13 close it would be, but it would float.

14 Q. But then it would be caught by the off-take
15 pipe after the skimming?

16 A. Right. Um-hum.

17 Q. But if there was oil that was exactly 1 or
18 very, very close?

19 A. If it was exactly 1 it wouldn't settle.
20 Settling basins won't settle things that way the same.

21 Q. What about oil and emulsions?

22 A. Would not.

23 Q. Were there emulsions in the influent that
24 would come into that?

25 A. Not very many, no.

1 MR. HINDERAKER: I didn't hear that.

2 A. I said not very many.

3 Q. On what do you base that conclusion?

4 A. Just from when I saw the ditch, saw the water.

5 I know what an emulsion looks like because at
6 Indianapolis we had trouble in our chemical plant with
7 emulsions. They look milky and the oil is all mixed up
8 with them and it's pretty difficult to break them.

9 Q. What about oils that have become dissolved in
10 the water or materials that have backed --

11 A. Settling basin would have no effect on any
12 dissolved material in the water. No way it could
13 separate that. It has to be separable by gravity.

14 Q. You mention that on the basis of the flow
15 rate figures you had gotten through the sewer you
16 calculated a -- you designed rather a settling basin
17 with a retention time of 1.

18 A. I think it was one hour, yes.

19 Q. How do you make that transposition? How does
20 that figure the flow rate? How is that transformed in
21 your calculations to determine the dimentions of a
22 settling basin that would have a one hour retention
23 time?

24 A. You know the volume of the retaining part of
25 the basin. You know the volume of it. You can make

1 the volume anything you want. If you starting out
2 designing your maximum flow over a certain number of
3 days, you take that and say if you got so many gallons
4 per minute, you multiply by 6 on your maximum flow rate
5 and it gives you the number of gallons you got to
6 retain. That would be one hour retention and you make
7 your basin that big. You can make it any size you want.
8 I think we were generous as I remember on the size of
9 the basin. We said we'd have a one hour retention
10 which is plenty, and I can't remember, but it seems to
11 me like if it came out to 36 and a half feet long or
12 something we made it, well, let's make it 40 feet, you
13 know.

14 Q. So if I understand you correctly, you take
15 the flow rate and you figure out how many gallons are
16 likely to flow a specific distance in an hour?

17 A. Right.

18 Q. You measure a capacity that will enclose that
19 volume?

20 A. Will hold it for one hour, yes. Take it one
21 hour to flow through there.

22 Q. How could you determine how to space what
23 distance to space the baffle apart in this capacity?

24 A. Back in those days it was all empirical. I
25 never saw any technical literature on how to do it. We

1 just did it by experience from other plants.

2 Q. You could look at the Indianapolis basin?

3 A. Right.

4 Q. And you would see about how far spaced apart
5 they would be?

6 A. Um-hum. Right.

7 Q. How would you determine how high to make the
8 oil-water separator?

9 A. Well, in those days, I don't know, I guess we
10 just made it as high as we wanted. Since that time,
11 why, there is technical literature that tells you how
12 high and how deep and how long to make a basin, you
13 know, but in those days we didn't have it. I didn't
14 have access to that. I couldn't find any. I just did
15 the best I could. Why I picked that depth I couldn't
16 even tell you what the depth was. Why I picked that
17 depth I don't know. It was probably because we had
18 basins somewhere close to that depth in other places
19 and they worked, so we used it. That's all I know.

20 Q. Do you have a rough recollection of the
21 approximate depth?

22 A. No, I don't. I can't remember what it was.

23 Q. Can you remember any of the dimentions?

24 A. No.

25 Q. Was the basin dug into the ground or was it

1 up above the ground?

2 A. They dug a hole in the ground and they built
3 this wooden basin and backfilled against the basin.

4 Q. So the entire thing was enclosed by earth?

5 A. Yes. But the top I think was a foot above
6 the earth, I believe, and then the earth sloped up to
7 it.

8 Q. So the pumps underneath the heavy oil
9 separator was totally enclosed by earth, would be
10 totally underground?

11 A. They would be in a separate sump or, as I
12 say -- see, I was involved in several of these over the
13 years. I can't remember whether we used an electric
14 pump or whether we used steam pumps. If we used steam
15 pumps we would have just had a pipe ending right at the --
16 right above the floor, say, about the three or four
17 inches above the floor and the steam pump would lift
18 the heavy oil right out of there.

19 Q. So the pipe would be above the floor, but the
20 steam pump would go down?

21 A. Steam pump could be up on the ground because
22 it can pull.

23 Q. I see. But the pipe would go underneath to
24 the sump?

25 A. The suction of the steam pump would be a pipe

1 which would go down and in just above the floor. We
2 may have used that. I can't remember. But we did pump
3 it. That I know. We pumped it to the tanks.

4 Q. When you determined the flow rate, did you
5 take into account at all rainfall in the area and how
6 that might increase or decrease the flow rate?

7 A. At that time we took into account only the
8 rainfall that fell in a certain area right around the
9 treating plant because we figured that's all that would
10 get in there.

11 Q. Could you designate on Minnesota Exhibit 9
12 which area you mean by the treating plant and the
13 rainfall that fell in that area?

14 A. Of course, this was based on actual
15 measurements. It wasn't any guess. But the area --
16 let's see. Here's the retorts. There is the settling
17 basin. I would say the area would be -- that's framing
18 area. I would say --

19 MR. COYNE: Off the record.

20 MR. HIRD: Off the record.

21 (At this time a discussion was held
22 off the record.)

23 MR. HIRD: On the record.

24 BY MR. HIRD:

25 Q. While we were off the record Mr. Hennessy

1 indicated that the area covered by the rainfall which
2 was taken into account in determining the capacity of
3 the -- or rather the flow rate of the water coming
4 through was in the area of tanks 1, 2, 3, 4 and 5 near
5 the treating room area and was also included -- I'm
6 sorry. Perhaps you should take over at this point.
7 Also included?

8 A. The retort room, the boiler room and probably
9 the adzing and boring mill.

10 Q. You were going to say something else before,
11 I believe.

12 A. What I was going to say is we actually had a
13 graph as I remember, not made by me but somebody in the
14 plant had a graph, and measured the flow in the sewer
15 and they measured it every hour, 24 hours a day for
16 maybe a week or so. We used that. That would include
17 any rain water. Of course, I don't know that it rained
18 during those days. I definitely remember there was
19 some talk about rain water and we figured that area, an
20 area right around how much rain there would be.

21 Q. That was during the time when there was an
22 enclosed sewer line?

23 A. Yes.

24 Q. Do you remember roughly what time of the year
25 it was when you designed this?

1 A. As I say, I think it was the winter time.
2 But I wouldn't swear to it. I think it was.

3 Q. Was this flow rate calculation done shortly
4 before you designed the oil-water separator?

5 A. No. The flow rate calculations weren't
6 exactly calculations. They were measurements.

7 Q. I'm sorry. Measurements. Were they done
8 shortly before?

9 A. Oh, yeah.

10 Q. So written a couple of weeks period or
11 something?

12 A. Couple months.

13 Q. Couple month period --

14 A. Um-hum.

15 Q. -- of the time that you designed it. After
16 you designed the oil-water separator, did you talk to
17 either Mr. Horner or to people at the plant about what
18 needed to be done to keep the equipment in proper
19 operating form?

20 A. I don't believe I talked with him, but I'm
21 sure there were some discussions. But I didn't, no.

22 Q. Did you relay to Mr. Horner any ideas or
23 thoughts you had about what kind of maintenance
24 procedures should be followed in keeping this oil-water
25 separator operating efficiently?

1 A. I did not write the operating instructions
2 for it, how often it had to be turned out or anything.
3 I don't remember doing any of that.

4 Q. Do you remember if he did it all?

5 A. Somebody did. I assume he did.

6 Q. Why do you think somebody did?

7 A. Well, I know later -- of course, as I say, I
8 was just a detail engineer at this time. But later on
9 whenever we did anything or built anything we always
10 give general operating instructions. The plant manager
11 would start with that and he would embellish it, add to
12 it as he went along and ran into problems and corrected
13 them.

14 Q. Were these written operating instructions?

15 A. Oh, yes. Yes.

16 Q. On other projects during the time that you
17 were detail engineer and other projects when you
18 finished with a design, would you then prepare a sheet
19 of operating instructions that would go along with the
20 design?

21 A. Not when I was detail engineer because I
22 would design a tower that supported some heat
23 (inaudible) and condensers, various things. There
24 would be no point to writing it. But the man in charge
25 of the process would write it.

1 Q. The project's engineer?

2 A. The project engineer. It was awhile before I
3 got into that.

4 Q. Mr. Horner was the project engineer on this?

5 A. He was chief engineer, yes.

6 Q. Was he also the project engineer on this
7 particular project?

8 A. I think he was but I wouldn't swear to that
9 either.

10 Q. Do you recall any other engineers in your
11 office --

12 A. Oh, yes.

13 Q. -- that worked on this?

14 A. I can't remember what they were working on,
15 no.

16 Q. Do you recall if Mr. Mitchell worked on this?

17 A. No, I can't.

18 Q. When you looked at the Indianapolis oil-water
19 separator, do you recall what material that was made
20 out of?

21 A. The Indianapolis oil-water separator was made
22 out of concrete.

23 Q. The one in Saint Louis Park was made out of?

24 A. Timber.

25 Q. Timber. What differences would that make in

1 terms of the distinction of materials?

2 A. Well, I think concrete is more permanent than
3 timber except that creosoted timber has a pretty good
4 life, 30 or 40 years I would say. Of course, a
5 concrete basin ought to last -- I don't know how long
6 it will last. Not forever, of course, but maybe 100
7 years. I don't know. Maybe 75 years.

8 Q. Was that substantially bigger than the one
9 that you designed for Saint Louis Park?

10 A. Oh, yes, because that was a much bigger plant.

11 Q. About how much bigger, twice the size, one
12 and a half times the size?

13 A. The one at Indianapolis was designed for
14 1,000 gallons an hour. I know that because I remember
15 that one very well. The one for Saint Louis Park I
16 couldn't tell you what it was. It was much less than
17 that though.

18 Q. Maybe about 200?

19 A. Way down there, yeah, something like that.

20 Q. 200 gallons per hour?

21 A. Well, I don't know. I don't remember.

22 Q. Something in that range?

23 A. Something in that range. 200 or 300. I
24 don't remember. I don't know.

25 Q. You mentioned that you had designed other

1 oil-water separators in the course of your career?

2 A. Later, yes.

3 Q. This was the first one?

4 A. This was the first one.

5 Q. What other clients did you design oil-water
6 separators for?

7 A. Designed one for Indianapolis.

8 Q. Another one in Indianapolis?

9 A. The one they have. The one that was built
10 about 1948 or '49. Somewhere around there.

11 Q. Is this different from the one you observed
12 when you were designing --?

13 A. The one at Indianapolis is a true API basin.
14 At that time we had technical information on what was
15 then the method of designing an API basin. It had
16 hoppers and skimmers and the whole bit. It was much
17 more sophisticated than this.

18 Q. That replaced the concrete basin, that you saw
19 originally when you were first --

20 A. Yes. Yes.

21 Q. So you designed the API basin to replace the
22 original concrete basin in Indianapolis which you had
23 seen?

24 A. Yes.

25 Q. You built that in 1948?

1 A. That's correct. Somewhere around there. '48
2 or '49.

3 Q. What other plants did you design oil-water
4 separators for?

5 A. One was designed under my direction both for
6 Chattanooga and for Cleveland.

7 Q. At what time period were these designed?

8 A. Early '50's.

9 Q. Were these both API separators?

10 A. They were modified API separators because the
11 flow was so very low, very, very low.

12 Q. What would be the major differences between
13 an API separator and the kind of separator that you
14 designed for Saint Louis Park?

15 A. Well, the major differences would be the way
16 the water is admitted to the separator. In an API
17 separator it's admitted over a weir so you don't need a
18 stilling baffle. Actually the weir is its own stilling
19 baffle. The water comes in and --

20 Q. Is this a V notch we're --

21 A. No. This is a weir going clear across the
22 separator. The water is only maybe a quarter or half
23 inch deep going over the weir depending on the flow.
24 And what this does is it evens out the flow over the
25 whole basin so you don't get a channel. You get an

1 even flow all the way along the basin. Then it has a
2 chain on it. So it has hoppers at the far end, the end
3 opposite the inlet. It scrapes the heavy oil down into
4 two big hoppers. Then it comes up and it moves the
5 light oil toward the inlet side, and there is a skimmer
6 which goes clear across the basin. It's a pipe that's
7 got the top cut out of it. You turn the pipe so that
8 it just barely -- just the very surface, see, the oil
9 on top that floats on top is very, very thin. It's
10 just thousandths of an inch thick. So what you do is
11 you turn this thing to just skim the surface and the
12 oil comes into the pipe and then goes to your light oil
13 sump. There is a concrete sump beside it to pump.
14 Then on the heavy oil side it goes into a hopper and
15 there is two pipes going down to an electrical sludge
16 pump which is -- it's not like a steam pump in that
17 it's got a cylinder but it's got a diaphragm. By
18 pumping this diaphragm it can lift. It lifts this
19 stuff into a tank sitting beside the separator. Then
20 it can be pumped anywhere in the plant you want to pump
21 it. Heavy oil.

22 Q. Let me just go over that again so I can try
23 and clear up a few areas of my confusion. When you
24 mentioned a chain you mean some sort of --

25 A. Two chains. One on each side.

1 Q. That are moved physically across the bottom?

2 A. They're moving continuously.

3 Q. They're moving continuously?

4 A. Very, very slowly. Just like the minute
5 hands of a clock. You can just barely see them move.

6 Q. They move from the influent direction down
7 towards the end of the basin or from side to side?

8 A. On the bottom of the API separator they move
9 from the influent towards the effluent. On the top of
10 the separator then the chain comes up over some
11 sprockets, then on top it moves from the effluent to
12 the influent side and the light oil skimmer is right
13 next to where the influent baffle is.

14 MR. HIRD: Let's break for a moment.

15 (At this time a recess was held.)

16 BY MR. HIRD:

17 Q. Mr. Hennessy, I'm now going to show you a
18 document which has been marked previously Deposition
19 Exhibit State of Minnesota 20. It's a document
20 ostensibly from you to Mr. Finch dated September 30,
21 1970, and is Reilly Tar date stamp number 302578. Do
22 you recognize that document, Mr. Hennessy?

23 A. Well, I wrote it so I guess I should
24 recognize it. September 30, 1970. Pardon me while I
25 read it and refresh my memory.

1 Q. Sure.

2 A. Okay.

3 Q. Do you recognize Minnesota 20?

4 A. I see the drawing. That's all right.

5 Q. I'm about to show you the drawing. The
6 original Minnesota 20 when previously identified I
7 think by Mr. Finch came without a drawing. So I'd like
8 you to take a look at this drawing that I'm showing you
9 now which is Reilly Tar date stamp number 302542. It
10 has in the corner a Republic Creosoting Company number
11 701210-1 which I believe corresponds to a number
12 mentioned in the opening line of Minnesota 20. Do you
13 recognize this drawing as the drawing that was attached
14 to Minnesota 20?

15 A. I recognize it, but this drawing shows a
16 concrete basin, right?

17 Q. I'm not sure.

18 A. Yeah, it does. Which at one time we were
19 considering building which is an API basin. Then down
20 here the letter says, "We're going to use an Edens
21 separator." That's beside the point. An Edens
22 separator is just one that is manufactured in a plant
23 rather than built in place. Same thing.

24 Q. So do you believe this drawing to be one of
25 the two drawings that are mentioned in the first line

1 of Minnesota 20? If you look at the drawing number in
2 that line and the number that appears in the corner of
3 this drawing I think --

4 A. Yes.

5 Q. -- they're identical.

6 A. Well, the letter is talking about -- I think
7 it's beside the point. The letter is talking about a
8 different basin than is shown in this drawing because
9 this drawing shows a concrete basin which is built in
10 place, and the letter is talking about an Edens
11 separator which is a piece of manufactured equipment.
12 But I think that's beside the point. It's just a
13 question of how you do it. They do the same job.

14 Q. But I guess the point that I'm getting to now
15 is a little more elementary.-- I'm just trying to
16 determine whether this was indeed the drawing that was
17 attached to this memo.

18 A. I don't know if it was or not. The drawing
19 was made 31st of July and the memo was made September
20 30th. The memo mentions an Edens separator. It looks
21 like we changed our mind between the time.

22 Q. Could you compare the number that is
23 mentioned here in the opening line?

24 A. Yeah. That says 701210-1.

25 Q. That seems --

1 A. That would indicate which was attached to
2 this letter, yes. I'm confused in that the letter is
3 talking about an Edens separator and this drawing
4 doesn't show an Edens separator.

5 Q. At the moment I just want to establish that
6 they were attachments then we can go directly into the
7 separator. I would like the drawing that you've been
8 handed to be marked with due deference to my colleagues
9 as Minnesota 20A.

10 (At this time Minnesota Deposition Exhibit
11 20A was marked for identification by the
12 Court Reporter.)

13 BY MR. HIRD:

14 Q. I believe you mentioned, Mr. Hennessy, that
15 the diagram Minnesota 20A is not necessarily an Edens
16 separator. But the difference between an Edens
17 separator is an Edens separator is a separator that's
18 built in a plant, but an API separator can be either an
19 Edens separator or an identical one built on the site?

20 A. Well, the API separator and the Edens
21 separator have differences, but I don't think they're
22 important. I can explain the differences if you want
23 to go into it. But they do the same job. Either one
24 would work.

25 Q. But this diagram Minnesota 20A --

1 A. That's an API.

2 Q. -- is an API. That stands for American
3 Petroleum Institute?

4 A. Correct. Yes.

5 Q. I wonder if you could on this drawing
6 Minnesota 20A just mark where the chains are that you
7 have been discussing. Just write a designation.

8 A. These are the sprockets here. The chains run
9 over the sprockets. Well, the arrows show the
10 direction the chain runs in. See the two arrows?

11 Q. Yeah.

12 A. The bottom arrow running towards the hopper
13 so it scrapes all the --

14 Q. So it's basically --

15 A. -- heavy oil into the hopper and the top
16 chain is pulling all the light oil toward that oil
17 retention baffle and the light oil -- there is the
18 skimmer he calls it. What it is is a light oil skimmer.
19 It's a pipe with the top cut out of it and you rotate
20 the pipe and you can just skim the very top layer of
21 the water off.

22 Q. I see. So the two chains are essentially
23 something like a treadmill operation going around and
24 around?

25 A. You might say, yes. Um-hum.

1 Q. How wide are these chains? Are they the
2 length?

3 A. The chains are just about that wide, but
4 there is one chain on each side and then there is these
5 baffles that the chains carry, or flights that the
6 chains carry, go clear across the separator.

7 Q. So when you said about that wide you measured
8 about three four inches?

9 A. Say two inches.

10 Q. Two inches. And they have baffles that go
11 around the treadmill?

12 A. The baffle is the width of the separator less
13 maybe half inch or so so that they won't scrape the
14 sides.

15 Q. I see. So two chains pull around a baffle?

16 A. Two chains pull the baffle, correct.

17 Q. How high are the baffles in terms of their
18 height?

19 A. They are either 6 or 8 inches. I don't
20 remember. Something on that order. 6 or 8 inches.
21 They are pieces of creosoted wood is what they are.

22 Q. The skimmer essentially stays in place but
23 rotates, however there is an opening at a certain place?

24 A. The skimmer is rotated by hand. What you do
25 is you see the baffle outflow, weir outfall, weir is

1 what determines the level of the water in the basin.
2 Okay? These baffles that are pulling the oil toward
3 that skimmer baffle, they actually break the surface so
4 that the oil is pulled down. Now, this outfall weir
5 what it does -- the level of all the water in this
6 basin depends on how high you set that weir. It also
7 depends on your flow. Because even though it goes
8 clear across you might have very low flows. You may
9 have only an eighth of an inch flowing over the weir
10 and at very high flows you may have as much as one inch
11 flowing over the weir. It's a great big weir which is --
12 well, let's see. This one how wide is it? Eleven feet
13 wide. That weir would be eleven feet long. So the
14 level in the basin isn't going to go up and down very
15 much. Not more than an inch. I'd say certainly less
16 than two inches.

17 Q. When you mentioned a hopper, would that be
18 the part that's marked "sump" on the upper drawing
19 section A?

20 A. Yes. There is two of those, correct.

21 Q. Why wouldn't an API separator be more
22 effective than the type of separator design that was
23 installed in Saint Louis Park?

24 A. It would be.

25 Q. Why would it be?

1 A. Why would it be?

2 Q. Yeah.

3 A. Because people have done work on that in the
4 meantime have found out that there should be a definite
5 relation between depth, width and height of water depth,
6 width, height. They have a more sophisticated method
7 of collecting the oil. See, our original design the
8 oil just was like filling in the bottom of the tank and
9 then you just pumped it out. But this the oil is
10 scraped into a hopper and when you pump that you get
11 very little water in it. If you're careful you can get
12 mostly all oil; whereas ours, you know, when you
13 finally break and start getting oil you get a
14 tremendous amount of water because once -- if you have
15 your pipe just a few inches above the bottom and then
16 you pump all the oil down to where the oil gets down to
17 the level of the pipe, why, the pump is going to pump
18 water in preference to pumping oil because it's less
19 viscous and lighter.

20 Q. So you get more oil?

21 A. You get more water, not heavy oil. This way
22 you get much less. What you do is you wait till the
23 hopper fills up and then you don't pump it all the way
24 down. You just pump it down a few feet. That way you
25 get practically all oil, you know, just very little

1 water. That's why it's more efficient. It's a better
2 design. There is no question about it.

3 Q. Is it also more effective in stopping more
4 oil from leaving the system?

5 A. I believe it is, yes. Well, really that's a
6 good question. I don't know if it's more effective in
7 keeping more oil from leaving the system or not, but
8 it's certainly more effective in recovering clean oil
9 and separating oil and water from pumping it out.
10 That's what the big advantage is. That's a big
11 advantage.

12 Q. So the big advantage is in how much oil you
13 save, not necessarily --

14 A. Well, you pump mostly oil and very little
15 water. See, this light oil baffle that you skim a very
16 thin film off and then these hoppers that you pump out
17 quite a bit of oil without getting any water in it.
18 Okay?

19 Q. When you said that you designed the Saint
20 Louis Park basin for less than 1,000 gallons per hour,
21 did you mean gallons per minute and not per hour? I
22 think we gave an estimate about 200 gallons per hour.
23 I'm just trying to be clear.

24 A. I think it was far less than 1,000 gallons a
25 minute, yes. But it was -- let's see. 1,000 gallons

1 water. That's why it's more efficient. It's a better
2 design. There is no question about it.

3 Q. Is it also more effective in stopping more
4 oil from leaving the system?

5 A. I believe it is, yes. Well, really that's a
6 good question. I don't know if it's more effective in
7 keeping more oil from leaving the system or not, but
8 it's certainly more effective in recovering clean oil
9 and separating oil and water from pumping it out.
10 That's what the big advantage is. That's a big
11 advantage.

12 Q. So the big advantage is in how much oil you
13 save, not necessarily --

14 A. Well, you pump mostly oil and very little
15 water. See, this light oil baffle that you skim a very
16 thin film off and then these hoppers that you pump out
17 quite a bit of oil without getting any water in it.
18 Okay?

19 Q. When you said that you designed the Saint
20 Louis Park basin for less than 1,000 gallons per hour,
21 did you mean gallons per minute and not per hour? I
22 think we gave an estimate about 200 gallons per hour.
23 I'm just trying to be clear.

24 A. I think it was far less than 1,000 gallons a
25 minute, yes. But it was -- let's see. 1,000 gallons

1 an hour would be -- yeah, it was more than 1,000
2 gallons an hour. But much less than 1,000 gallons a
3 minute.

4 Q. So something in the range of 200 gallons?

5 A. Somewhere down there. 100, 200. This letter
6 says 100 to 200 which you handed me. It says a maximum
7 flow would be 200 gallons per minute but normally less
8 than 100 gallons per minute. It's right in this
9 document here. That's better than my memory.

10 Q. Since you were the one who wrote this
11 document where would you get those figures?

12 A. From actual measurements which are very easy
13 to do. We had several ways of measuring it. We had
14 weirs. We had sumps. A lot of ways you can measure it
15 You can measure it very accurately.

16 Q. Do you know why the one hour settling time
17 was selected by Mr. Horner in your design?

18 A. Because it was very conservative. I believe
19 that one-half hour is all you need. But we wanted to
20 be conservative. So we said one hour settling time at
21 the maximum rate flow.

22 Q. What advantage do you get from being that
23 conservative?

24 A. Probably get a little better settling but not
25 much. I think most of your settling takes place in a

1 half hour. At least that's been our experience. In
2 case you would get some sort of accidental flow or
3 something for any reason you get a flow over the design
4 flow, the thing would still work. You could get a flow
5 twice design flow and it would still work. That would
6 be the only reason.

7 Q. How many times design flow would you have to
8 go before it would stop being effective?

9 A. I don't know. If you designed it for an hour
10 and you had three times a design flow, you'd have a
11 third of an hour. So you'd probably start getting more
12 oil over it.

13 Q. Now, I believe you said you designed
14 additional separators on the API format in Indianapolis
15 in Cleveland and somewhere else.

16 A. Chattanooga.

17 Q. Chattanooga. When were the Cleveland one
18 installed again, early '50's?

19 A. I would guess late '50's. But I'm not sure.

20 Q. When was the Chattanooga one installed?

21 A. I would say maybe early '60's.

22 Q. These were all API design separators?

23 A. Um-hum.

24 Q. Did you ever install or design and install a
25 separator of the variety of the one that was installed

1 in Saint Louis Park in any other plant?

2 A. I never did, but we had all our separators
3 that were built prior to 1941 were built that way. We
4 had creosoting plants in quite a few areas in those
5 days.

6 Q. Do you know when the API design for a
7 separator came into existence?

8 A. The data I used in 19 -- whatever it was,
9 late '40's, was hot off the press I'll guarantee. It
10 was brand new. Now, whether there was -- I won't say
11 that there weren't other articles previous to that, but
12 the one I had was a very late article. It was only
13 less than a year old I'm sure.

14 Q. When you installed those separators, the
15 Indianapolis, Cleveland and Chattanooga separators, did
16 you give maintenance and operation instructions to the
17 plant staff?

18 A. Oh, yes.

19 Q. Written instructions?

20 A. I'm sure I did.

21 Q. Perhaps why don't we go back this way. If at
22 the time you did the detail engineering work on the
23 Saint Louis Park separator you had been asked to
24 provide written instructions on the operation and
25 maintenance of that separator, what kind of

1 instructions would you have given them on the basis of
2 your understanding of the equipment that you had just
3 designed?

4 A. I'm sure I would have told them to keep it
5 pumped out. They had to pump it out every so often,
6 not let the heavy oil get beyond a certain depth and
7 not let the light oil accumulate to too great a depth
8 on the top.

9 Q. How often would every so often have been?

10 A. That's something that the plant would have to
11 determine by operating it. I mean, you know, I don't
12 know. Because some days it would catch practically
13 nothing. You'd have mostly clean water. Other days it
14 would be dirty. It would catch a lot. So I don't know

15 Q. Would you say at least a daily basis?

16 A. Oh, no. No.

17 Q. Weekly?

18 A. No. I think weekly is plenty.

19 Q. But at a minimal basis would be about a week?

20 A. I would think a week or maybe twice a month
21 at the very most -- or very least I would say.

22 Q. What other operating or maintenance
23 instructions would you give?

24 A. The operating instructions I would give would
25 be for the plant manager who is a technical man and he

9
1 would write his own instructions to the operators, the
2 guys that he put in charge of the thing. My operating
3 instructions would be how you had to operate the
4 equipment based on the design. Now, what instructions
5 are given to the actual operators I don't know. I
6 never saw those.

7 Q. But you could give the instructions generally
8 to the plant manager who would in turn --

9 A. I would make sure the plant manager
10 understood the basis for the design and what he had to
11 do. In fact, he would know the basis for the design
12 before it was ever designed. Then after I did it,
13 after the design was submitted to him, why, there would
14 be what you might call operating instructions, you know
15 what you have to do to keep it in operating condition.

16 Q. Other than pumping out periodically, which I
17 guess you said every week or twice a month?

18 A. That's a guess, yes.

19 Q. What other operating instructions would be
20 necessary to be given to run this piece of equipment
21 properly, to run the oil and water separator that was
22 installed at Saint Louis Park?

23 A. Well, normally if you buy manufactured
24 equipment such as pumps, any type of equipment, you
25 give them the manufacturer's instructions on

1 maintenance, preventative maintenance and so forth of
2 any new manufactured equipment you give him. I would
3 just give him the information on the general design of
4 the basin or general operating conditions required for
5 the basin, plus I would give him the manufacturer's
6 literature on how you'd maintain the new manufactured
7 equipment that went with it.

8 Q. This was something that was built from
9 scratch by Reilly, as I understand.

10 A. The basin itself was. The pumps weren't.

11 Q. The pumps were manufactured?

12 A. The pumps were manufactured, yes.

13 Q. So you'd give them instructions about how to
14 maintain the pumps that were purchased elsewhere and
15 you'd tell them --

16 A. When you buy a pump you always get the
17 instructions with it, and they would be forwarded to
18 them, yes. We would keep a copy of it and send them a
19 copy.

20 Q. Do you know whether a creosote-petroleum
21 blend was ever used to treat crossties at the Saint
22 Louis Park plant?

23 A. To my knowledge, no, I don't know if it was.
24 I couldn't say.

25 Q. You couldn't say one way or the other?

1 A. No, huh-uh.

2 Q. If it was used, wouldn't the petroleum in
3 that indicate a great deal of light oil coming in --

4 A. It sure would, yes.

5 Q. Coming into the separator?

6 A. Um-hum.

7 Q. At the time you worked on the oil-water
8 separator, were you given any information about the
9 sources of waste water in the plant to assist you in
10 making your calculation?

11 A. I'm sure I was. I had to be. Sure.

12 Q. Was the separator installed so that all waste
13 water would go through the separator?

14 A. It was installed so that all contaminated
15 waste water went through the separator, yes.

16 MR. HIRD: Maybe now might be a good
17 time for a break.

18 THE WITNESS: Okay.

19 (At this time a recess was held.)

20 BY MR. HIRD:

21 Q. When you designed the oil-water separator,
22 what was it that would move the light oil on the
23 surface into the pipe that would draw it off? Was that
24 just accomplished by the flow of the water?

25 A. Are you speaking of the one in Saint Louis

1 Park?

2 Q. The one in Saint Louis Park. I'm sorry.

3 A. Just the flow of the water.

4 Q. Still there would be sufficient flow that it
5 would move water into the pipe?

6 A. Yes. The general flow was from the influent
7 end to the effluent end, right.

8 Q. If the heavy oil coming into the Saint Louis
9 Park separator had dirt and sand mixed in with it, what
10 effect would this separator have on that heavy oil?

11 A. Well, the separator would also separate out
12 solids which would be in the heavy oil and it would
13 create a problem then. They would have to settle it
14 out in the tank and then periodically clean out the
15 tank.

16 Q. How would they go about cleaning out the tank?

17 A. I suppose what they did would be to first of
18 all pump all the liquid out of it and then open the
19 tank up and send a labor crew in with shovels to clean
20 it out. That's the only thing I can think of. I never
21 saw them clean one in Saint Louis Park, but that's the
22 general procedure.

23 Q. Did you see it done at the Indianapolis plant?

24 A. Oh, yes, I've seen it done many times at the
25 Indianapolis plant.

1 Q. Would you expect that to occur periodically,
2 in the life of an oil-water separator such as the one
3 you designed at Saint Louis Park?

4 A. I wouldn't expect it to occur too
5 periodically. You're not going to get a whole lot of
6 solids out of the creosoting operation. You're going
7 to get some bark and things like that. You shouldn't
8 get mud and cinders and that type of thing in it.

9 Q. But if it ran through a ditch, wouldn't it be
10 likely to pick up dirt and sand and the like?

11 A. If it ran through an open ditch, it would
12 pick up dirt and sand, yes.

13 Q. When you actually saw the settling tank in
14 operation for the first time, I believe you said that
15 at that point the sewer had been dug out. Was there a
16 still a tile?

17 A. This was the effluent, yes. I don't remember
18 how far the tile went, but I know further down in the
19 plant it was definitely a ditch.

20 Q. Further down past the separator or before the
21 separator?

22 A. Oh, past the separator. It was in pipes
23 before the separator.

24 Q. So when you did look at it, when you came to
25 to Saint Louis Park for the first time and you looked

1 at the separator, you did see a tile going to the
2 separator or did the influent go through a ditch on its
3 way to the separator?

4 A. Let's see. They had tiles went to a sump and
5 the sump pumped the water into the separator.

6 Q. Was the sump immediately before the separator
7 was it very close?

8 A. The sump was, yes, most sumps were right next
9 to the separator I believe. I believe they were even
10 on the same end of the separator. If I remember
11 correctly the influent sump, the pipe went the length
12 of the separator and then discharged into the separator
13 and the effluent end it came out a pipe in the middle
14 of the separator and went into the discharge sump which
15 then pumped it up into the sewer.

16 Q. I'm sorry. If I could refer your attention
17 again to U.S. Exhibit 2, could you mark where these
18 sumps are that you were talking about?

19 A. Well, this sump isn't shown. But say there
20 is a pump here. Here's your influent sump here, okay,
21 and pump. If I remember correctly, this came out and
22 pumped through this pipe down to this end of the
23 separator.

24 Q. So I see. So it went all the way across the
25 separator?

1 A. Yes. This is the influent pipe. And the
2 effluent came out here.

3 Q. Could you mark this influent sump?

4 A. Um-hum. Don't take my locations literally..
5 But as far as the thing operated, that's the way it was

6 Q. So before it got to the influent sump there
7 would be tile all the way back through the process?

8 A. Several tiles emptied into the influent sump.

9 Q. Were those tiles when you observed them dirty
10 with sand?

11 A. Couldn't observe them. They were underground

12 Q. You said when you came there that the trench
13 had been dug up.

14 A. I'm speaking of the effluent trench. I'm
15 speaking of the one this pump pumps into. The tiles
16 feeding the influent pump are not dug up, no.

17 Q. So every time you saw them they were
18 underground?

19 A. They were covered, yes.

20 Q. I believe you mentioned at one point that the
21 levels that you drew in U.S. 2 of materials or the
22 water level would vary on how often you pumped it out.
23 I assume that means that if you were less likely to
24 pump it out, if you pumped it out less frequently, the
25 levels would tend to be higher?

1 A. The levels would tend to be higher, and this
2 would be bad because you'd have less retention time.
3 The higher that level gets, the less retention time you
4 have in the basin.

5 Q. You mean the higher the level of solid of
6 heavy oils?

7 A. Um-hum. Sec, it just sits there. It takes
8 up room.

9 Q. Mr. Hennessy, I'd like to show you now Saint
10 Louis Park Exhibit Number 43. I'd like to ask whether
11 you can identify this Exhibit as something that you may
12 have received.

13 A. It's got my name on it so I obviously
14 received it.

15 Q. Do you recognize it and the various
16 attachments?

17 A. Well, I recognize the letter I think, yes.
18 You want me to read it?

19 Q. If you wish. Actually, I'm going to direct
20 your attention to some attachments that may not be
21 discussed in the opening letter but simply listed on
22 the attachment signed by Mr. Horner.

23 A. Which attachment is this now?

24 Q. If you would go back, you see there are
25 charts, two charts, which I think have a Reilly Tar

1 date stamp numbering of 302831 and 302832. Would these
2 two charts indicate the flow rate of drainage from the
3 Saint Louis Park facility around the time that you were
4 designing the oil and tar separator? I believe if you
5 look at the --

6 A. I can't find a date on it, but actually
7 that's what these show. They show the actual flow in
8 our effluent from the plant.

9 Q. I think if you refer to the third page of the
10 Exhibit, page signed by Mr. Horner for a moment, he
11 seems to indicate on his list of Exhibits, list of
12 attachments, number two.

13 A. Dry weather effluent flow dated January 25,
14 '41. Okay. These must have been what I used. Okay.
15 This is January 25, '41. So probably these are the
16 graphs that I was speaking of that I used for designing
17 the basin.

18 Q. Do you recall whether the notations on the
19 left side of these two pages 302831 and 302832 indicate
20 the gallonage in a specific figure? Is that gallons
21 per minute?

22 A. It says gallons per minute. That's probably
23 what it is. So it shows a flow generally of around 35,
24 30 gallons a minute with peaks at 85 gallons a minute.

25 Q. These readings were taken over I guess a two

1 day period?

2 A. Well, we got graphs here for -- let's see,
3 what's this bottom line here? Morning. Yeah. Okay.
4 These are hours. 4:00 o'clock, 5:00 o'clock, 6:00
5 o'clock. January 26th. I don't see a date on this one
6 Wait a minute. January 25th, January 26th. I don't
7 know the date on the first one. But the last one is
8 two days. So it looks like there is at least four days
9 on here from the size of the graphs.

10 Q. Do you recall whether you looked at more than
11 those two graphs?

12 A. No, I can't. That's been so long ago.

13 MR. HIRD: Off the record.

14 (At this time a discussion was held
15 off the record.)

16

17 (At this time a recess was held.)

18 BY MR. HIRD:

19 Q. When did you first observe the oil-water
20 settling basin at Saint Louis Park in operation?

21 A. First time I observed it was the first time I
22 was in the plant which was in the early '50's.

23 Q. Did you watch it processing water or did you
24 just simply take a glance at it?

25 A. I walked by it and looked at it and observed

1 it, but I didn't stay and watch them operate it, no.
2 I didn't see them pump it out or anything like that. I
3 was there for another purpose.

4 Q. About how long did you spend looking at it?

5 A. Probably 5 minutes. I don't know.

6 Q. Did you see anything that indicated at the
7 time that it was wasn't operating properly?

8 A. No. It looked clear at that time.

9 Q. Can you tell by looking through the surface
10 of the water if oils are building up to a high-level?

11 A. I couldn't tell, no.

12 Q. But could you tell if it were? I mean, can
13 one tell by looking over the oil-water separator and
14 seeing the tar level under the water level whether that
15 was building up to a high-level?

16 A. I never saw that at Saint Louis Park. At
17 Indianapolis you couldn't see it because it was scraped
18 into those hoppers and pumped out. I don't know
19 whether you could see it or not. I never saw it at
20 Saint Louis Park.

21 Q. Did you ask anybody any questions about its
22 operation when you first saw it at Saint Louis Park?

23 A. When I first saw it, no, huh-uh.

24 Q. When did -- I'm sorry.

25 A. I just started to say I just walked around

1 the plant and was looking at various things. It was
2 the first time I'd seen the plant. I'd never been
3 there before.

4 Q. When did you next see the oil-water separator
5 in operation?

6 A. Well, I was at Saint Louis Park probably ten
7 times in twelve years. I won't say every time I went
8 there I looked at it, but I saw it several times during
9 that time, that period of time, which would be in the '50's.

10 Q. Did you ever see anything that indicated that
11 it wasn't operating properly or it wasn't maintained
12 properly?

13 A. Well, I was there one time during the flood,
14 and I understand they had much worse floods than that,
15 but that's the only thing I saw.

16 Q. When were you there during the flood, about
17 what time?

18 A. I'd say it was after Louisiana Street was put
19 through whenever that was, which I think was in the mid
20 '50's. I don't know. I can't remember. It was after
21 that time.

22 Q. So probably the late '50's?

23 A. Probably, yes.

24 Q. What happened when you saw the flood? How
25 did it --

1 A. Well, the water was so high it was flowing
2 into the basin and the whole plant was flooded, the
3 roads were under water, they were clear up to the axles
4 of the cars going into the plant.

5 Q. Was the flood water coming through the tile
6 or was it coming just over the surface of the ground?

7 A. Right over the surface of the ground.

8 Q. So there wasn't more flood water coming
9 through the tile, it would still be the same capacity?

10 A. Well, water coming through the tile. Of
11 course, it would be flooded with the water above ground

12 Q. Do you have any idea when the tile was put in
13 there, put in Saint Louis Park?

14 A. Some of the tile I'm sure was put in in 1942
15 or '41, whenever that settling basin was built. Other
16 tile had already existed. In other words, they had
17 tile I'm sure from the refinery to the sumps at the
18 creosoting plant prior to the building of the
19 separating basin.

20 Q. Could you point to where there was tile on
21 Minnesota Exhibit 9?

22 A. Let's see if I can. Let's see. Oh, that's
23 water. Sorry. Here's our sewer system. I don't know
24 what that is.

25 MR. HIRD: Maybe we should go off the

10
1 record.

2 (At this time a discussion was held
3 off the record.)

4 MR. HIRD: On the record.

5 THE WITNESS: Here's the tile right here.

6 BY MR. HIRD:

7 Q. Running from still 17?

8 A. Running from the refinery building to the
9 inlet sump.

10 Q. The dotted line going from the refinery down
11 to where it says "sump" and "hay filter"?

12 A. That's right. See, these dashes here are
13 sewers. It's the same thing. So that is a sewer,
14 right.

15 Q. That was constructed prior to 1942 or was
16 that constructed --

17 A. It must have been constructed in '42. The
18 reason I say that is that sump didn't exist before '41
19 or '42, whenever this was built.

20 Q. So you're saying the dotted line from the
21 refinery building to the sump and hay filter was put in
22 at the same time as the settling basin?

23 A. At least the part between this manhole and
24 that sump was put in. This may have existed before. I
25 don't know. This may have gone clear over here.

1 Q. I see what you're saying. So if I can
2 correct myself because I think I mischaracterized your
3 testimony. You're saying from this manhole circle to
4 the refinery to where there is another manhole right
5 next to -- I guess that's a railroad track.

6 A. That's a narrow gauge railroad track.

7 Q. A narrow gauge railroad track was installed
8 prior to the installation of the settling basin?

9 A. My guess is that it was, yes.

10 Q. Then the segment from that manhole cover down
11 to the point where it says sump and hay filter was
12 installed about the same time that the settling basin
13 was installed?

14 A. Correct. Yes. That's right.

15 Q. Do you have any sense as to when this tile
16 that went from the refinery to the manhole cover right
17 past the railroad tracks was installed?

18 A. I can't say. But the refinery was built, as
19 I say, about 1921 or '22 and it might have been put in
20 then. I don't know.

21 Q. Were you involved in the design of the tile
22 as well as the settling basin?

23 A. Only in so far as connecting tiles to the
24 sump, yes, um-hum.

25 Q. Not in the installation of the new segment of

1 tile?

2 A. The new segment would be what I was -- that
3 would be part of the job.

4 Q. So you designed that as well?

5 A. Yes, um-hum.

6 Q. Was there any outside contractor who was
7 brought in to install the tile or the settling basin?

8 A. I can't remember who the contractor was. I
9 didn't hire him. The plant manager hired him. I can't
10 remember who he was.

11 Q. But there was a contractor?

12 A. I'm sure there was because a job that size
13 I'm sure would require a contractor. Plant maintenance
14 couldn't have handled it.

15 Q. So if I recall before we went to the tile we
16 were discussing your various trips to Saint Louis Park
17 and your looking at the settling basin and operation.
18 Was there any other time you saw any problem with the
19 settling basin besides that one time that you saw flood
20 waters exceeding --

21 A. No. Not when I was there, no.

22 Q. When was the last time you were at the plant?

23 A. Early '60's I think. It may be '62,
24 somewhere around there.

25 Q. Did you ever ask anybody about what

1 maintenance procedures were kept up on these oil-water
2 settling basins?

3 A. No. I never got into the operation of the
4 plant at all.

5 Q. Did you ever ask anybody about the use of the
6 heavy oil that was supposed to be pumped out of the
7 bottom of the settling basin?

8 A. No. Except that I knew it was pumped back to
9 the creosoting plant and reused, but I never asked
10 anybody what it was used in or anything like that.

11 Q. How do you know it was pumped back to the
12 plant and reused?

13 A. That's where the piping went.

14 Q. But you saw the piping going back to the
15 plant?

16 A. Oh, yeah, sure. It was pumped to a certain
17 tank. It's in these documents what tank number it was
18 pumped to.

19 Q. When you were asked to design the settling
20 basin, were you given any reason as to why a decision
21 had been reached to install the settling basin?

22 A. Well, to recover the oil and clean up the
23 water. That's the only reason for doing it.

24 Q. Why was it important at that point to clean
25 up the water? Did anyone tell you why it was a concern

1 of Reilly's at that point in time to clean up the water?

2 A. I can't remember to be honest anybody telling
3 me any reason why we're cleaning up the water other
4 than we had to clean it up. We wanted to clean it up.
5 I don't know that there was any other reason.

6 Q. Were you told that there had been any other
7 type of oil-water separator or equipment that would
8 control oils leaving in the effluent at the plant prior
9 to the time that you designed this oil-water separator?

10 A. I can't remember any. Of course, I knew that
11 we had separated oil and water in a tank. But that's
12 the same thing. It isn't as good as this, but, of
13 course, a cone bottom tank might be better. But that's
14 the only thing. Just separation by retention of the
15 oil, you know, it takes so much time. You have to have
16 a 30 minute settling time.

17 Q. Were you told that there were any such tanks
18 in operation at the time that you designed this
19 oil-water separator?

20 A. Not for that reason. We had a lot of cone
21 bottom tanks in operation for separating various oils
22 and various materials that had different weights.

23 Q. So prior to the time that you designed this
24 oil-water separator and the separator was installed, as
25 far as you knew the oils that would be caught by this

1 would have gone right out the pipe and continued out of
2 the Reilly property?

3 A. Prior to the installation of the settling
4 basin, any water that went out with oil in it, yes, the
5 oil would go right out with it, sure. That was the
6 purpose for building the separator.

7 Q. I understand at a certain point later in time
8 a straw filter was used in conjunction with the
9 separator. Where in the process was that installed?
10 Was that installed before the water got to the
11 separator? Was that installed after the water got away
12 from the separator?

13 A. It was installed after the water got away
14 from the separator.

15 Q. What was the purpose of the straw filter?

16 A. The purpose of the straw filter was to absorb
17 any iridescent oil that floated on the surface. These
18 light oils were -- just a few drops of light oil will
19 cover a tremendous area. You don't need very much.
20 They form a very thin film and they spread out and
21 they're very difficult to skim off because they are so
22 thin. You get a lot of water with them when you skim
23 them off. So what you can do any light oil that
24 escapes you can built a straw filter and the straw will
25 absorb that oil.

1 Q. What do you mean by the word iridescent? I'm
2 afraid I'm not familiar with that.

3 A. Have you ever seen an oily film on water and
4 it's all different colors that reflects light and it's
5 blue and all different colors? That's called
6 iridescent.

7 Q. That's interesting. I always wondered what
8 that was called. The straw filter was installed about
9 1951, is that correct?

10 A. I believe so. I can't remember but somewhere
11 around there.

12 Q. Why was it considered important to install
13 the straw filter in 1951, ten years after the settling
14 basin had already been in effect?

15 A. For appearance because, in fact, we had two
16 straw filters later on. But for appearance sake. In
17 other words, this little tiny bit of oil could make a
18 terrible looking ditch. I mean, you know, you'd think
19 it was an oily ditch and it would have just maybe one
20 part per million or even less, far less than that oil
21 in it. It wouldn't take very much. It doesn't take
22 much oil to form this iridescent film that looks
23 terrible. Looks a lot worse than it really is. It
24 looks terrible. So in order to clean that up we put in
25 the straw filter.

1 Q. Were you the project engineer on the
2 installation of the straw filter?

3 A. Yes.

4 Q. Was Mr. Horner involved at all in the project
5 of creating this straw filter?

6 A. At that time since he was my boss I guess he
7 was involved. But I don't remember what he did. But I
8 did the work.

9 Q. You didn't go to the plant then to work on
10 the installation of the straw filter?

11 A. I did that from Indianapolis.

12 Q. By the time you saw the whole oil-water
13 settling basin for the first time, the straw filter was
14 already in place?

15 A. I think it was. I wouldn't swear to that,
16 but I think it was. I'm pretty sure it was.

17 Q. What was the approximate cost of the
18 oil-water separator at the time?

19 A. I don't know because in the first place costs
20 vary so much, you know, back in the '40's, you know.
21 Skilled mechanic making a dollar an hour was doing
22 pretty well in the early '40's. Now, you know, \$10 or
23 \$12 or \$14 an hour. So materials have gone up. It
24 would just be a guess if I told you how much it would
25 cost. It wouldn't mean much anyway.

1 Q. Would you have regarded it as expensive,
2 inexpensive or a very sort of routine ordinary cost?
3 How would the expense of installing the water separator
4 be considered?

5 A. Well, I would say for just a simple structure
6 it was expensive, but it wasn't any earth-shaking
7 expenditure. I would say it was expensive.

8 Q. What about the straw filter mechanism?

9 A. Straw filter mechanism was inexpensive. What
10 it consisted of were two baskets, two big baskets that
11 span -- see, the water went through you might call it a
12 rectangular trench and this trench was spanned by two
13 baskets each with straw in it. And they had a little
14 hoist with a chain lift where you could lift it out and
15 clean out the straw. So what you would do when the
16 straw got black you'd lift out one, put clean straw in
17 it and then put it back and lift out the second one and
18 take the dirty straw out and put clean straw in.

19 Q. Did you give any written instructions to the
20 plant manager when you designed the straw filter?

21 A. Well, I'm sure I did. But I can't remember
22 doing it. But I'm sure that some written instructions
23 were given.

24 Q. What instructions do you think you gave him?

25 A. When to change the straw and the straw filter

1 also contained a weir which measured the flow of the
2 sewage or the effluent, how to read that and change
3 that from inches to gallons per minute or something.

4 Q. How frequently would you have instructed him
5 to change the straw?

6 A. It depended. You can tell by looking at the
7 straw. If you didn't have much of that iridescent oil
8 the straw might last, I don't know, maybe two weeks.
9 On the other hand, if you had a lot of it, why, you'd
10 have to change it a couple times a week. You had to do
11 that by observation.

12 Q. What would happen if someone did not change
13 the straw as frequently as necessary?

14 A. Then as soon as the straw absorbed all of
15 that iridescent oil it could, it wouldn't absorb any
16 more and it would look the same downstream as it did
17 upstream.

18 Q. Now, was this straw lowered into a trench?
19 Was the procedure that the straw filter would be
20 lowered into the trench which the effluent would be
21 coming through?

22 A. Okay. If you can visualize a box, a wooden
23 box. I don't know how big this box was. Say it was
24 four feet wide by maybe three feet deep, say. Okay.
25 You would have a cage which would be that wide and

1 deeper than that so that when you put the straw in it
2 would be about a foot above the liquid level. So you'd
3 have straw all the way down in this basket. And you
4 had two of them so that when you were changing the
5 straw you didn't short circuit it. In other words, you
6 wait till the straw got brown, it was still working,
7 then you would lift one basket out and change the straw
8 and put it back in, then you'd take the second basket
9 out, change the straw and put it back in.

10 Q. You would take the basket out by lifting out
11 of the trench?

12 A. With a crane. What would they call those
13 things? I don't remember. My memory's getting bad.
14 There is a name for that hoist that you use. Jib crane
15 Just a little jib crane. Then we had a chain fall on
16 it. All a guy had to do was hook onto the basket and
17 lift it with the chain fall and swing it over and
18 change the straw. Very easy process.

19 Q. Could someone tell if the filter was black
20 without lifting it --

21 A. Oh, yes. Yes.

22 Q. -- by looking in?

23 A. Oh, yes, sure could, because this straw did a
24 real good job of absorbing. Even the straw above the
25 water would start turning brown.

1 Q. When you visited the plant in I believe the
2 late '50's and the ground was flooded and the basin was
3 flooded, did you discuss with anybody about how
4 frequently this type of flooding occurred?

5 A. Sure did.

6 Q. Who did you talk with?

7 A. I talked with Holstrom first, I believe, and
8 then Finch and then Bill Justin. I talked with all of
9 them.

10 Q. How frequently did they say this flooding
11 occurred?

12 A. Well, after Louisiana Avenue was put through
13 they had some sort of a flood after every heavy rain.

14 Q. Had these floods occurred prior to that time?

15 A. No. I won't say they didn't but not to my
16 knowledge. Not like they did afterwards.

17 Q. You said they said they have floods after
18 every heavy rain. Did they give you any sense about
19 how frequently that was in the course of a year?

20 A. No.

21 Q. Or how many days?

22 A. I couldn't answer that. I don't know how
23 many rains. How many heavy rains they had a year. I
24 don't know. Probably several time as year anyway.

25 Q. What did they attribute the flooding to? How

1 come they started to get floods at this point? Did
2 they give you an explanation?

3 A. When they put Louisina Avenue through they
4 put storm sewers in draining that whole area. And the
5 storm sewer effluent in the storm sewer was in their
6 plants, they just ran it inside our property line and
7 stopped it. So when we had a heavy rain that whole
8 area of Saint Louis Park drained into the storm sewer
9 and ran across our plant. That's what caused the
10 serious flooding.

11 Q. Did they give any thought to establishing
12 dikes so that there wouldn't be a flooding of the
13 oil-water separator?

14 A. No. Well, we talked with them about
15 completing the storm sewer and getting rid of it. We
16 talked ourselves about putting our own ditch in to
17 route it around the plant and up across Walker Street.
18 It was sort of impractical.

19 Q. Why was it impractical?

20 A. Well, Wheeler Lumber Bridge and Supply was
21 right there in the way. We would have had to go around
22 them. All our railroad tracks that were entering the
23 plant we would have had to gone under those. We would
24 have to tunnel under the street where it came in and
25 that would have been a job. Build bridges and

1 everything, tunnels.

2 Q. Was there any thought to building a dike in
3 the system that would simply take the water off so that
4 it would not run past the oil-water separator?

5 A. You mean build a dike across our plant to do
6 this? No. No. Huh-uh.

7 Q. Or build a trench?

8 A. Build a trench? There was some thought to
9 building a trench, but it would have been a very
10 expensive proposition. It would have to be a pretty
11 good size trench and go through all those places I
12 talked about.

13 Q. How about simply a dike around the area where
14 the oil-water separator was?

15 A. It would have to contain a lot of water, a
16 dike would. You'd have a big pond there plus the fact
17 also right here near where that came in somebody, I
18 believe Ready Mix Concrete Company, had a plant there,
19 I believe. They were renting part of the land from us
20 and were making concrete there, I believe. I believe
21 it was one of the Ready Mix Concrete companies.

22 Q. In the design of the oil-water separator was
23 there a settling pond that came immediately prior to
24 the separator? In other words, that water could go
25 through the settling pond and then into the separator?

1 A. What was your question again?

2 Q. Was there a settling pond of some sort on the
3 property that effluent would go into on its way to the
4 oil-water separator?

5 A. I wouldn't call it a pond. There were sumps.
6 For instance, at the edge of the cylinder there was a
7 sump and there were sumps under the cylinders. The
8 cylinders were riveted tanks. And if they sprung a
9 leak, the oil would go into this you might call it a
10 gutter under the cylinders and run out into the sump at
11 the end and it was pumped to a tank and it was settled
12 in a tank. Does that answer your question?

13 Q. Actually it leaves me with a little bit of a
14 confusion. Let me tell you where my question comes
15 from. In some of the Reilly documents that we've seen
16 there is references to a pond and a settling pond. I'm
17 not sure whether this is a -- and I believe Herb Finch
18 in his deposition referred to a pond that is somehow in
19 an earlier stage before one gets to the oil-water
20 separator. Would there have been a particularly large
21 sump that might have been what you're thinking about
22 and might have been called a pond by somebody else?

23 A. I can't remember any sump that could by any
24 conceivable stretch of the imagination be called a pond.
25 I can't remember. I don't believe there was a lake in

1 the plant or a pond. I can't place -- the only body of
2 water, the biggest body of water in the plant I can
3 think of other than floods when the whole thing became
4 a lot of it became a lake but let's ignore that and
5 just say I can't think of another pond in the plant. I
6 can't remember any at all.

7 MR. HINDERAKER: Could I ask a
8 clarification question?

9 MR. HIRD: Please.

10 MR. HINDERAKER: Maybe of you too. As I
11 understand it, we've talked for quite awhile about the
12 oil-water separator and sometimes the word settling
13 basin has been used. I take it you're talking about
14 the same thing?

15 THE WITNESS: Correct. That's correct.

16 MR. HINDERAKER: This discussion about a
17 settling pond is something different from the settling
18 basin that's been discussed?

19 MR. HIRD: That has been my
20 understanding or my import of my question.

21 THE WITNESS: I think if Herb Finch used
22 the term settling pond I think he was referring to the
23 settling basin or the separator. I don't know. I
24 don't know of any pond.

25 MR. COYNE: You'll note on Minnesota

1 Exhibit 9 there is a pond shown.

2 THE WITNESS: Okay. There is. I forgot.
3 I can explain that pond to you. That is not a settling
4 pond though. What that pond is is that pond is a pond
5 we use to cool our condensers in the refinery. In
6 other words, we had a pump there that pumped make-up
7 water, you know, to the pond and the water was pumped
8 out of the pond and went through the condenser coils
9 and then the warm water came back into the pond where
10 it evaporated and the evaporation was made up by
11 pumping water into the pond.

12 BY MR. HIRD:

13 Q. So that would be a returning cycle to and
14 from the pond?

15 A. Yes. Right. That water was not contaminated
16 That water was all in coils and never came into contact
17 with the product.

18 Q. Would it have come in contact with the
19 product if the coils had been leaking?

20 A. Oh, yes. Yes. If the coils leaked, they
21 would leak into the water going through the coils.
22 Normally the leakage was the other way because the
23 water pressure was much higher than the oil pressure.
24 I won't say you won't get leak age of oil into the
25 water but mostly oil into the water tank would start

1 going up pretty fast.

2 Q. Would the water in the pond find its way in
3 any case to the oil-water separator?

4 A. No. It was clean water.

5 Q. But there was a sump immediately before the
6 oil-water separator?

7 A. There were several of them.

8 Q. Were they important in figuring out the
9 capacity or the retention time of the oil-water
10 separator, the existance of the sumps?

11 A. Well, no, I don't know why they would be.

12 Q. Were they dug at the same time that you
13 installed the oil-water separator?

14 A. No.

15 Q. Was there a reason why the oil-water
16 separator was located immediately after the sump?

17 A. That just seemed like the best location for
18 it because most of our -- most contaminated water came
19 from right in that area. So we put it close and we got
20 it out of the way of everything else.

21 Q. But the presence of the sumps didn't effect
22 the efficiency of the oil-water separator?

23 A. Oh, no. Huh-uh.

24 Q. Do you recall what specific waste water
25 sources you were concerned about, you were told about,

1 when you designed the oil-water separator and where the
2 water was coming particularly?

3 A. We were concerned mostly with the water that
4 was going down the sewer with the effluent from the
5 plant. That's what we were concerned about. That's
6 what we worked with.

7 Q. But what particular components of the
8 effluent to the plant were you concerned about on --
9 perhaps I should withdraw the question and try and
10 rephrase it. Waste water that might come out of a
11 plant might come from various different points.

12 A. Correct.

13 Q. I'm trying now to ask you what points was the
14 water that you were trying to treat through the
15 oil-water separator coming from, which specific parts
16 in the process.

17 A. The great majority of it or I'd say the
18 majority of it was coming from the treating plant and a
19 smaller amount was coming from the refinery, tire
20 refinery.

21 Q. What sources in the treating plant? Was it
22 all from one point in the treating plant or were there
23 several different points where effluent was coming from
24 in the treating plant?

25 A. It's hard to say. I'm sure there was more

1 than one part because most contaminated water would be
2 coming from the settling tank where they settled water
3 from the oil. Again in the tar plant there was what
4 they called a water cut. Tar contains two or three
5 percent water. In the first cut you get over is called
6 the water cut. That was separated in a tank and the
7 oil was saved and the water was put through the
8 settling basin.

9 Q. So water cut water would be coming from the
10 refinery?

11 A. This would be a very small amount but yes, it
12 would come from the refinery.

13 Q. Was there any other water coming from the
14 refinery at that time?

15 A. The great majority of water used in the
16 refinery was from this pond and was returned to the
17 pond. Contaminated water would be the water from the
18 water cut. And what else would there be? Any rain
19 water that got into any pipe trenches would flow into
20 the settling basin. That wouldn't be very much though.

21 Q. Where in the treating plant would water be
22 coming from? What types of processes would it be?
23 Just one part of the process or would it be several
24 different sources in the treating plant?

25 A. Well, when you open the cylinder door, oil

1 and water flows out the cylinder door, you know. You
2 can't empty the cylinder completely. When you open the
3 door you always get a drip into this sump which is oil
4 and water mixture. That's one. Okay. Where else?
5 Any cooling water that's used in the -- we have a huge
6 air compressor which is water-cooled cylinders. That's
7 another. Of course, that water wasn't contaminated,
8 but I'm sure it was mixed with it because that water
9 may have. I don't know whether we bypassed the
10 settling basin with that or not. Then there was a
11 boiler in there. All your boiler water. The boiler
12 was blown down into a tank and separated in a tank and
13 then water from that was put through the settling basin

14 Q. What do you mean by blown down?

15 A. Well, when you make steam you buildup
16 dissolved solids in a boiler. In order to keep from
17 coating the tubes and scale, you've got to blow it down
18 every once in awhile. You blow the water. There are
19 two ways you blow it down. Blow down water -- of
20 course, we had two different kinds of boilers. So I'll
21 confuse you. But anyway, you have to blow down the
22 water to put more treated water in to prevent scale
23 formation on the tubes which you burn which would burn
24 the boiler out. It floats right on top. That skims
25 off water with dissolved solids right where the steam

1 separates. A skimmer then skims off and that water is
2 contaminated. Went to the settling basin also.

3 Q. From both boilers?

4 A. From both boilers except that, in order to
5 clarify that, the one boiler was used as a standby for
6 the other. There was a 20,000 pound Riley tube boiler
7 which was a water tube boiler and then a smaller boiler
8 which was about the same size but it was a Bros fire
9 tube boiler. And the fire tube boiler was used only as
10 a standby for the Riley. When the Riley boiler went
11 out or down we went to the Bros boiler.

12 Q. By Riley you mean the Riley R-I-L-E-Y?

13 A. Riley Stoker Corporation. Right. No
14 connection. Just the same name. Spelled differently.

15 MR. SHAKMAN: Bros boiler is B-R-O-S.

16 A. Bros boiler made in Minneapolis.

17 Q. Were the two boilers located right next to
18 each other?

19 A. They were right next to each other in the
20 boiler room.

21 Q. Marked on Minnesota Exhibit 9?

22 A. Correct. Right. Um-hum.

23 Q. Now, you were talking before about water from
24 the cylinder in the treating plant. Do you mean the
25 treatment cylinder where pressure was applied to ties

1 to impact preservatives on?

2 A. Right.

3 Q. In the course of the process of treating the
4 ties was steam blown across the ties inside the
5 cylinder?

6 A. I think on our ties which was most, to my
7 knowledge. Now, I won't say they didn't do it. But to
8 my knowledge the process that was mostly used on ties
9 at the Saint Louis Park plant was first thing they did
10 is they put the white ties in the cylinder, okay. The
11 second thing they did is they filled the cylinder with
12 oil. Then the next thing they did was they pulled a
13 vacuum on the oil and this pulled the sap out of the
14 wood. Okay? Then this, of course, contaminated the
15 oil with water. The next thing they did is they heated
16 the oil and applied pressure. I forget how much
17 pressure. Around 200 pounds per square inch I think.
18 And this forced the oil into the wood. Then depending
19 on who the customer was or how he wanted it treated,
20 they just pulled it out that way. They put the oil
21 back in the tank and pulled it out or they put the oil
22 back in the tank and pulled another vacuum on it.
23 There are several different methods of treating. It
24 would depend on what the customer was going to use the
25 lumber for. He would tell you how he wanted it treated.

1 Q. Were there any methods of treating that was
2 used which involved blowing steam across the wood
3 during the treatment process?

4 A. There may have been because we did treat some
5 lumber for Wheeler Lumber Bridge and Supply and how
6 that was treated I don't know. I wasn't in on the
7 operation of the thing. But I think our ties were all
8 seasoned in the yard. The process was to season the
9 ties in the yard, to bring them to the adzing and
10 boring mill or the machine, what you might call the tie
11 machining plant where were adzinged and bored and
12 anti-splitting devices were put in the ends and they
13 were put in the cylinder and treated and pulled out and
14 shipped.

15 Q. But in the cylinder did the process, for
16 example, heating up the preservative call for blowing
17 steam across?

18 A. For heating up the oil they had steam coils
19 in the bottom of the cylinder and they'd put steam if
20 the steam coils --

21 Q. But loose steam wasn't blown across?

22 A. I won't say it wasn't, but to my knowledge --
23 as I say, I wasn't involved in the plant. I think most
24 of the treating was railroad ties. And I think most of
25 the ties were seasoned in the yard until -- there was a

1 certain length of time they used for seasoning.
2 Sometimes they'd stay there a lot longer because they
3 had to wait until they got an order. They never
4 treated it except to order. A lot of these ties
5 belonged to railroads. They didn't belong to us. So
6 what we did is we put the ties in the cylinder when we
7 got an order and put ties in the cylinder and then we
8 treated them.

9 Q. Was there any pan or process at the end of
10 the cylinders that would collect condensate of any sort
11 steam condensate?

12 A. Well, to answer your question about the only
13 thing I can do is tell you what I know. And that is
14 when they blew pressure off the cylinder they relieved
15 it into a tank. Then they pumped the cylinder out with
16 a centrifugal pump, I believe, a big centrifugal pump
17 that pumped it from the cylinder back into the tank.
18 Then they opened up the end of the cylinder and pulled
19 the ties out. They were pulled out onto a big long
20 concrete pad which was above ground. Now, to answer
21 your question I'm trying to remember.

22 Q. I understand.

23 A. To answer your question, when they opened the
24 cylinder doors you would get oil and water out the end
25 of the cylinder door down into the sump, right at the

1 end of the cylinder. This was pumped back into a
2 settling tank right there at the treating room. I
3 already told you how they got rid of the pressure in
4 the tank. Let's see. What else is there? Leaks. The
5 cylinders were old. They were built about 1924, '25.
6 They were riveted. Every once in awhile a leaky rivet
7 would start leaking until it was caulked again. So any
8 of these leaks would be whatever the preservative was
9 they were treating with would leak onto a concrete --
10 might call it a gutter. What it was was a V notch in a
11 concrete floor. This ran to the sump. Now, what other
12 water would there be?

13 Q. Was steam ever used to clean the cylinders
14 when not in use?

15 A. I assume it was but I don't know. As I say,
16 I was never involved in the operation of the treating
17 plant. It may sound funny but that's the way it was.

18 Q. Well, to the extent I'm going beyond your
19 expertise forgive me. The only way I can find out what
20 you know is to ask you some questions which you may or
21 may not know. Can you think of any other sources of
22 water that at that time you were considered going into
23 the settling basin? I'm sorry. Maybe I should
24 rephrase it. That you were planning for in your design
25 of the settling basin as types of water that would be.

1 likely to be coming through and that you wanted to
2 direct through the settling basin?

3 A. Well, our contaminated water when that
4 settling basin was designed was coming from the
5 refinery and from the creosoting plant. This includes
6 the boiler room because the boiler room was in the
7 creosoting plant. Those are the only two sources that
8 went into the settling basin that were actually piped
9 into the settling basin. Anything else got in there by
10 accident.

11 Q. Was there any type of contaminated water that
12 might not have gone through the settling basin that you
13 can think of in terms of how it was discharged? I'm
14 talking now about the time when you were planning the
15 basin and its location.

16 A. Well, in later years -- there were a couple
17 years or a few years there that, in fact, that was one
18 of the things we were doing when they decided to close
19 the plant. We had a tar pit. This tar pit was a
20 concrete basin. It had steam coils in it. The tar was
21 brought into a building that covered the tar pit, the
22 tar sump. The tar was unloaded from cars into this tar
23 sump just by opening, connecting a hose, putting the
24 end of the hose down into the tar pit and opening a
25 valve and then a tank car. It would run by gravity out

1 of the tank car into the tar sump. The reason it was
2 built that way is because it's cold up there and
3 sometimes that tar gets awful hard to handle. You have
4 to put steam on the coils of the car which is clean, of
5 course. That steam air comes in contact with any
6 product. But in later years that building went into
7 disrepair because it was so old. The thing was built
8 about 1920 or '21 or '22. So we tore the building down
9 before it fell down. We had a roof designed to go over
10 it, but before the roof was designed the drawings were
11 made, but before we built it the plant shut down. So
12 it never got covered again. That's the only other
13 contaminated water I can think of that did not go
14 through the settling basin. Because when it rained on
15 that tar you had water floating up on top of the tar.
16 Of course, it stayed pretty clean. It looked clean.
17 You can't say it wasn't contaminated because it was in
18 contact with tar.

19 Q. Was this tar sump that you described also
20 referred to sometimes as a tar cistern?

21 A. Yes. Yes. Um-hum.

22 Q. Could you point on Minnesota 9 to the
23 location of the tar cistern?

24 A. That's it.

25 Q. Where it's indicated --

1 A. Um-hum.

2 Q. -- with a legend "tar cistern"?

3 A. Right.

4 Q. Okay. Thank you. When we were talking a
5 little bit earlier about water flowing from the
6 contaminated water flowing from the boiler room, how
7 would that water have gotten contaminated?

8 A. Well, blow down water could contain boiler
9 scale. It would contain no oil, of course. You can't
10 have oil in a boiler. But it would contain boiler
11 scale. It would be contaminated with solids. That's
12 the only way.

13 Q. What do you mean by boiler scale?

14 A. Well, you have to treat water in a boiler to
15 prevent forming boiler scale. When you boil water and
16 make steam, you get any hardness in the water, if the
17 water's treated properly it will floc out and settle to
18 the bottom. You got to get rid of that solid.

19 Q. What is scale?

20 A. Suspended solids. Scale is calcium carbonate
21 magnesium carbonate, stuff that you definitely don't
22 want in your boiler tube. If you get a layer of
23 calcium carbon it's goodbye boiler. You're going to
24 lose it.

25 Q. If water were fed into a boiler which

1 contained tar balls, would those tar balls be likely to
2 be found in the boiler blow down water that would go to
3 the settling basin?

4 A. You would know it because the boiler would --
5 what do they call it? It would foam. You'd get all
6 kinds of foam and liquid in your steam lines. You'd
7 get very wet steam.

8 Q. Would that be like an emulsion when you say
9 foam?

10 A. I don't think it's an emulsion. If you get
11 oil in boiler water and then try to operate your boiler
12 it's going to foam and this time will come out into
13 your steam lines and you'll get a tremendous amount of
14 water in your steam.

15 MS. COMSTOCK: David, do you have a
16 point where we might wind up for the day?

17 MR. HIRD: I have a feeling we have just
18 about reached it.

19 Q. Do you have any idea of the capacity in
20 pounds per hour of the second boiler?

21 A. No. It was smaller than the first boiler.
22 And the first boiler I remember was around 20,000
23 pounds per hour of steam and that's maximum. I would
24 say the Bros boiler is probably around ten but I'm
25 guessing. I don't know.

1 Q. When you talked about flooding of the basin,
2 you mentioned, I believe, earlier that the basin was
3 elevated about a foot from the ground.

4 A. (The witness shook his head affirmatively.)

5 Q. So that the flooding would essentially come
6 over the top. At least the way it was described to you
7 by the gentleman at the plant, would it carry the heavy
8 oils that were in the bottom of the basin out as well
9 or just the surface water?

10 A. Well, if the water came from the east side of
11 the plant, I would say most of it would just be surface
12 water. But the time it came from the north side of the
13 plant -- well, I saw it come from the east side. I
14 never saw it come from the north side but I know it
15 happened. That flooded the boiler room and the
16 treating cylinder and everything. The boiler room
17 floor was inundated. The treating centers were
18 inundated. The level was clear up. It wasn't up to
19 the cylinder, but it was washed over that floor where
20 we caught the oil that leaked out of the cylinders and
21 it also flooded the sumps at the end of the cylinder.

22 Q. Would it running over the settling basin be
23 of sufficient force to carry with it any heavy oil that
24 might have been sitting at the bottom of the basin?

25 A. It would certainly upset the settling basin.

1 The settling basin retention time might just have been
2 a couple minutes at that time. I don't know. It would
3 mix it up.

4 Q. So if something had settled out previously it
5 would lift it out?

6 A. It could. It could.

7 Q. When you mentioned the effect of tar in a
8 boiler as creating foam, would that also have an effect
9 in terms of damaging the boiler itself?

10 A. Oh, yes. Oh, yes, it sure would.

11 Q. How so?

12 A. Well, a boiler tube is only a few degrees,
13 say, 5 or 10 degrees hotter than the steam it's making.
14 You have a boiler tube. On one side of the tube you
15 have boiling water and on the other side of the tube
16 you have a flame. You have combustion, products of
17 combustion. All right. Now, when you get tar on the
18 inside of a boiler tube, first of all the tar is a very
19 good insulator. Cold tar is an excellent insulator
20 from heat. So first of all you'd have a layer of tar
21 there and what would happen the tube would get hot. It
22 would be somewhere near between the flame temperature
23 and the steam temperature. Then when it got hot the
24 tar would then coke. Then you'd have a layer of coke
25 which is real good scale on the inside. The tube would

1 get red hot and could rupture because steel when it
2 gets that hot the strength of steel goes way down in
3 temperature. You get above 1,000 and it's pretty low.
4 The tube would just rupture from stress.

5 MR. HIRD: Thank you, Mr. Hennessy, for
6 today's deposition. I guess we'll see you tomorrow.

7 (At this time a discussion was held
8 off the record.)
9

10 (At this time the deposition was adjourned
11 and set to be resumed at 9:00 a.m. on the
12 11th day of January, 1983.)
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1
CROSS-EXAMINATION

2 BY MR. HINDERAKER:

3 Q. Mr. Hennessy, I'm first going to sort of go
4 over some things that were touched upon yesterday,
5 matters that I wasn't clear about in our discussion
6 with Mr. Hird. I may be touching on one topic for a
7 very short period of time and then going on to another.
8 I will try to identify for you that I'm doing this so
9 that we're tracking on a similar vein. If for any
10 reason you have a question or you don't fully
11 understand my question, tell me so that I can rephrase
12 it.

13 A. Go ahead.

14 Q. Let me first for my purposes get in context
15 your employment history with Reilly. I don't want to
16 repeat yesterday so I'll ask you questions and you can
17 tell me if I'm tracking right. You were employed by
18 Reilly in Indianapolis as an engineer in approximately
19 1938?

20 A. Right.

21 Q. Then in the late '40's you had a job title
22 change to assistant chief engineer?

23 A. That's correct, yes.

24 Q. Then I understand sometime in the early
25 1970's you --

1 A. '60's I think. Well, wait a minute. Middle
2 of '60's. Somewhere around there.

3 Q. Middle '60's. And your job title was changed
4 to what?

5 A. Chief engineer. It might have been the late
6 '60's. It's when Mr. Horner retired, whenever that was.
7 But anyway go ahead.

8 Q. All right. So you became chief engineer
9 after Mr. Horner retired?

10 A. Yes, that is correct. Now, Mr. Horner was
11 still chief engineer in emeritus. But he was more or
12 less on special projects. He wasn't running the
13 engineering department any more.

14 Q. Do you have a sense of how many years Mr.
15 Horner was still at Reilly Tar in this emeritus status?

16 A. Just a few years. I can't remember. It
17 wasn't very long. Very few.

18 Q. For example, try to get a handle on this time
19 frame, one of the documents that you looked at
20 yesterday, and if it's important to pull it out we will
21 but it was Saint Louis Park Exhibit 43 and it happens
22 to be dated November 19, 1969. That document is one
23 which references Mr. Horner as an attendee at a
24 particular meeting. With that time reference in mind,
25 would that be, as best you can recall, would Mr. Horner

1 have been chief engineer at that time or was that
2 during his emeritus status?

3 A. I think that was a very early stage of his
4 emeritus State, yes.

5 Q. So you became chief engineer probably in the
6 late 1960's?

7 A. Yes. Something like that.

8 Q. Then your visits to the plant at Saint Louis
9 Park, the occasions when you were physically there, in
10 general were during the 1950's?

11 A. Yes.

12 Q. That ten year time frame?

13 A. That's correct.

14 Q. Are you a registered engineer in any State?

15 A. Yes, I am.

16 Q. What states?

17 A. Indiana.

18 Q. Any others?

19 A. No. Just Indiana.

20 Q. When were you registered?

21 A. When was I registered? Oh, if I had my
22 papers at home I could tell you. Okay. I was
23 registered about I'd say 19 -- well, in the late '40's
24 or early '50's I was registered.

25 Q. Was the registration a civil engineering?

1 A. I don't believe at that time the State had
2 engineers categorized that way. You were a
3 professional engineer or you weren't. Just PE is all
4 you were. They had different categories but you
5 weren't registered that way. You were just registered
6 as a professional engineer.

7 Q. Did the examination that you had to take
8 differ depending upon your discipline?

9 A. It does now, but when I was registered you
10 didn't take an examination. What you had to do is you
11 had to have 5 registered engineers that were familiar
12 with your work certify that you were competent.

13 Q. I see.

14 A. I had Professor Shief (ph) of Perdue and
15 professor Schultz(ph.) at Notre Dame and I had three
16 more chief engineers. Mr. Horner was one. Mr. Dickson
17 was one and Mr. -- I can't remember his name. Baker I
18 believe his name. Well, he worked for H. J. Baker
19 Company. I'm not sure what his name was now.

20 Q. So with the 5 references then the
21 certification?

22 A. 5 references I was certified, yes.

23 Q. As an aside one of the things that we'll try
24 to have to do, and I know I try to do it myself, but
25 we'll try to have to not talk over each other since the

1 court reporter can most easily take down one at a time.
2 Getting back to the engineering department in
3 Indianapolis, in 1970 how many people were in the
4 engineering department?

5 A. You want me to include draftsmen or just
6 engineers?

7 O. Just engineers and not the technical or
8 draftsmen professions.

9 A. My guess would be about seven.

10 Q. Was that a constant number? How many were
11 there approximately in 1938?

12 A. Four. I'm sorry. There were 5. There were
13 four engineers plus Mr. Horner who was the chief
14 engineer. I forgot to count him.

15 Q. I take it as an engineer in the department
16 you would respond to requests for assistance from any
17 of the Reilly Tar plants wherever located?

18 A. Yes. That's right.

19 Q. Is it an accurate summary or general
20 statement, an accurate general statement, to say that
21 the engineering department responded to the requests
22 for work that were directed to it from management?

23 A. Well, I'd have to talk a little bit about
24 that. First of all, if management would give us a work
25 order, that would be an authorization to proceed. Then,

1 of course, that's who gave us the authorization to
2 spend the money. Now, the plants could call for advice
3 on things, you know, if they wanted to know how to do
4 something or what was a proper way of doing something.
5 They would call on us for our experience and we would
6 advise them by telephone or write them a letter.

7 Q. So your work would be in response to work
8 orders or in response to telephone requests for advice
9 and assistance?

10 A. Correct.

11 Q. Did you or anyone in the engineering
12 department have a function of staying current on a
13 day-to-day or a monthly basis with a particular plant?
14 Do you understand that question?

15 A. Particular plans for the plant?

16 Q. Let me rephrase the question. If in a year's
17 time there was never a work order relative to the Saint
18 Louis Park facility and never a telephone call from the
19 Saint Louis Park facility, would it be accurate to say
20 that you would have no involvement with that facility
21 during that period of time?

22 A. In that case the only involvement I would
23 have would be insurance.

24 Q. How would you be involved with insurance?

25 A. Before the advent of the computer I made all

1 the appraisals or the engineering department made all
2 the appraisals for insurance values.

3 Q. What type of appraisals of what is what I'm
4 asking.

5 A. Building, equipment. We did not appraise the
6 inventory. I think the plant managers did that. But
7 building and equipment and things like yard piping,
8 cranes, things of that nature, trams, whatever, rolling
9 stock.

10 Q. For what period of years did you personally
11 do that?

12 A. Well, I personally do it or supervise it, one
13 or the other.

14 Q. Yes.

15 A. I would say from late '40's until they
16 computerized that operation which was in the early '70's
17 maybe late '60's.

18 Q. Did you also appraise land?

19 A. No.

20 Q. That was not an element of the insurance
21 appraisal tasks?

22 A. No. Because you only appraised -- the
23 purpose for the appraisal was to buy insurance. We
24 appraised the plant and sent it to the management and
25 they bought the insurance.

1 Q. You were not a member of the finance
2 committee at any time?

3 A. Oh, no. No.

4 Q. I'm going to pull out a piece of paper here.
5 (At this time Saint Louis Park Deposition
6 Exhibit 49 was marked for identification by
7 the Court Reporter.)

8 BY MR. HINDERAKER:

9 Q. Mr. Hennessy, I'm going to show you the copy
10 of this document that the court reporter has marked for
11 identification as Saint Louis Park Exhibit 49. This is
12 a memorandum of July 9, 1970, from yourself to Mr. P.
13 C. Reilly. I want you to take whatever time you desire
14 to review that document and I'll have some questions.
15 Have you had a chance to look at that?

16 A. I read it over, um-hum.

17 Q. This memorandum was prepared by you?

18 A. Yes.

19 Q. It is relative to an appraisal of the Saint
20 Louis Park plant?

21 A. This is an appraisal made for actually
22 selling the plant, or part of it.

23 Q. I take it that it was at the request of the
24 finance committee?

25 A. Well, it's addressed to Mr. P. C. Reilly. So

1 he evidently requested it. He was president of the
2 company at that time I believe. I don't know. Maybe
3 Mr. Ryan was president. I don't know.

4 Q. First sentence of the document says, "The
5 finance committee had a special meeting last July 1st.
6 Asked me to gather --

7 A. I missed that. You're right. Finance
8 committee asked me. Okay.

9 Q. I take it with reference to the paragraph
10 Roman numeral III is it right that you were trying to
11 evaluate -- you did evaluate a variety of options, but
12 one of them was the sale of the entire property of the
13 plant?

14 A. Correct.

15 Q. In your evaluation did you assume that the
16 buyer could be the city of Saint Louis Park or any
17 other interested person?

18 A. Well, it would have to be an interested
19 person, whoever.

20 Q. Whoever?

21 A. Yeah, um-hum. Although this is a sale of
22 property to Saint Louis Park or a developer as is or
23 leveled. Okay. It says it right there.

24 Q. If you turn to the second page you'll notice
25 that the second to the last paragraph says, "Paper

1 supporting these values are attached." I have a
2 question regarding the process by which you came up
3 with these figures in light of your practices with
4 regard to appraisals for insurance.

5 A. Well, this is entirely different than an
6 appraisal for insurance. Appraisal for insurance --
7 you only insure that part of the plant you only
8 appraise that part of the plant which is insured which
9 is appraising the whole plant. For instance, a
10 railroad track is not insured. You never insured our
11 fences. This includes everything. You never insured a
12 railroad track.

13 Q. Do you have a recollection of what the
14 supporting papers were?

15 A. You can imagine the calculations to arrive at
16 this. They must have been -- I'd say they're as thick
17 as this tablet here probably.

18 MS. COMSTOCK: Quarter of an inch?

19 A. Maybe half an inch. They had to be 20 or 25
20 papers, sheets of paper. I don't know. You can
21 imagine what it was appraising the whole plant. It's
22 no small job.

23 Q. Would you tell me the process that you went
24 through?

25 A. We obviously used Boeckh's Manual of

1 Appraisals because they even asked me for -- his index
2 is here. So all buildings were appraised by using
3 Boeckh's index and Boeckh's Manual of Appraisals.
4 Equipment like tanks and railroad tracks and so forth
5 we knew the costs of them. We buy tanks every once in
6 awhile. We know the cost of a 20,000 gallon tank. We
7 know the cost of a 30,000 gallon tank or we know the
8 cost of a 100,000 gallon tank which would have to be
9 field erected. We buy them every once in awhile at
10 various plants. Then there is a Marshall and Steven's
11 index where if you know the price in Chicago, say, you
12 can transfer it to Minneapolis or you can transfer it
13 to somewhere else. You can also correct it for
14 inflation during the years. This Marshall and Steven's
15 index is used for equipment. What else is there?
16 Well, cranes and things of that nature. It's like work
17 order, old work orders would tell us how much we paid
18 for the crane and we would know how old it was and what
19 kind of shape it was in. We'd know its condition. We
20 know how much use we had of it. We'd know that it was
21 the type of crane that we'd replace it with. This all
22 has to do with the value.

23 Q. Then how about the evaluation of the land
24 itself?

25 A. The evaluation of the land itself. How did I

1 get that? I think it was by comparing it to some real
2 estate that was sold in the area, industrial real
3 estate, if I remember correctly. I'm pretty sure
4 that's right.

5 Q. Would you look again at the second page and
6 that heading Roman numeral III, "Sale of entire
7 property as is or leveled." My first question is I
8 take it sale of the property as is means with buildings
9 tankage, trackage, everything in place, is that correct

10 A. That's correct. For instance, we sold our
11 Mobile plant that way and that plant is still operating
12 only under a different company.

13 Q. Then sale of the property leveled is the
14 removal?

15 A. Removal.

16 Q. All of that?

17 A. All the buildings and so forth. Cost of
18 leveling anyway.

19 Q. You came up with the figure \$1,554,600 as the
20 price for the sale of the property as is?

21 A. That's correct, um-hum.

22 MS. COMSTOCK: Excuse me. I think you
23 said five hundred fifty-four.

24 Q. \$1,554,600.

25 MS. COMSTOCK: Okay.

1 A. Okay.

2 Q. Is that a price which you consider to be fair
3 market value price for a purchase on that basis?

4 A. This is they asked me for my appraisal and I
5 gave them my appraisal and this is what I came up with.

6 Q. Because then the cost of leveling is added to
7 that price --

8 A. Correct.

9 Q. -- to determine what price in your view would
10 be a fair market value for selling the property with
11 just the land, is that right?

12 A. Well, this would be level all the buildings
13 and I assume I had in that cost removal of the rubble.
14 I don't remember how we were going to dispose of the
15 bricks and so forth. But yes, essentially you're
16 correct. This was the cost of leveling the plant.

17 Q. That figure then is \$1,654,400, correct?

18 A. It's \$1,687,000, well, 88, and then \$400,
19 yeah. You add the figures. You add \$1,554,600 and
20 then the \$1,834,800. Is that your question?

21 A. Then do you subtract the \$34,000?

22 A. Yes. The \$34,000 is what you sell the -- a
23 lot of the material is salvageable and can be sold. At
24 that time back in -- when was this written? 1970.
25 That's what I figured the value of the salvage would be.

1 Q. So then what would be as you calculated what
2 was the fair market value for the Saint Louis Park
3 plant property sold on a sold leveled?

4 A. Sold leveled with no salvage would be -- well
5 it would be the sum of \$1,554,600 and \$133,800. That's
6 my appraisal.

7 Q. Then if there was salvage you'd subtract
8 \$34,000 from that?

9 A. Yes. Because that would be income. That's
10 material you sold.

11 Q. That evaluation, was that for the entire 80
12 acres of the site?

13 A. I believe it was. The only -- there was
14 several acres, I don't know how many, that Mr. Reilly
15 had deeded to Saint Louis Park years ago. It did not
16 include that. It included only that that we still had
17 title to.

18 Q. Did it include everything that you had title
19 to?

20 A. Yes, um-hum. Now, this also does not include
21 any inventory, you know, that was done by someone else.

22 Q. I understand.

23 Q. You notice on the bottom that Mr. T. J. Ryan
24 is carbon copied?

25 A. Um-hum.

1 Q. Do you recall his status at this time of July
2 1970?

3 A. Either he or Mr. T. E. Reilly was president
4 of the company. If Mr. T. E. Reilly was president of
5 the company, Mr. T. J. Ryan was chief accountant. And
6 if Mr. Ryan was president of the company at that time,
7 Mr. T. E. Reilly would have been on the board of
8 directors. I can't remember the years. I can't
9 remember who. We don't use titles. You notice I don't
10 have one on these.

11 Q. Then Mr. McAdams was in the accounting area?

12 A. Mr. McAdams was -- well, if Mr. Ryan was
13 president, Mr. McAdams was chief accountant, yes,
14 that's correct.

15 Q. If Mr. Ryan was not president then Mr.
16 McAdams was what?

17 A. In the accounting department.

18 Q. Were those three gentlemen that were carbon
19 copied members of the finance committee at this time?

20 A. I believe Mr. Reilly and Mr. Ryan was. I
21 don't know if Mr. McAdams was at this time or not. He
22 may have been. I don't know. There were always four
23 members, but I can't remember.

24 Q. Thank you.

25 A. You're welcome.

1 (At this time Saint Louis Park Deposition
2 Exhibit 50 was marked for identification by
3 the Court Reporter.)

4 BY MR. HINDERAKER:

5 Q. Mr. Hennessy, why don't you take a moment to
6 look at what we've marked as Saint Louis Park Exhibit
7 50. It's four pages of handwritten notes. My first
8 question will be whether the writing is yours.

9 A. No, it is not.

10 Q. Second question is whether you can identify
11 the writing.

12 A. No, I can't. Let me read it. Let's see.
13 For B, C and D they must have used my figures. These
14 other figures I don't know where they came from. I'm
15 sorry. I can't identify the writing. It doesn't look
16 like Robert Boyle's. I don't know whose it is.

17 Q. As far as you know is this something you've
18 never seen before?

19 A. I don't remember ever seeing it before.

20 Q. Let's pass on that.

21 Q. This notebook here is all of the State of
22 Minnesota Deposition Exhibits tabbed by number. The
23 majority of the documents that I'll be showing you
24 today will be documents that previously have been
25 marked as State Exhibits. So if you can use this

1 notobook that will give you an easy reference to those.

2 A. All right.

3 Q. I'm going to ask you about 80.

4 A. 80.

5 Q. State 80 just for a moment.

6 A. Here's State 80.

7 Q. Have you had a chance to look at that?

8 A. I read it, yes.

9 Q. You notice it's dated July 13, 1951?

10 A. Correct.

11 Q. The end of the second line going under the

12 third line is asking for a design of a settling basin

13 similar to the one at Indianapolis. You see that?

14 A. I see it.

15 Q. We're talking about the Saint Louis Park

16 facility? The memo is in regard to the Saint Louis

17 Park facility?

18 A. Correct, um-hum.

19 Q. Does this memo suggest that the settling

20 basin at Saint Louis Park was designed in the early '50

21 A. No. The basin at Saint Louis Park was

22 designed in the early '40's.

23 Q. I know that's your testimony of yesterday I

24 know.

25 A. Yes.

1 Q. I was confused when I saw the date of this
2 exhibit of ten years later with the letter from Mr.
3 Larkin asking for design of a settling basin similar to
4 the one in Indianapolis. Maybe I should ask another
5 question. I notice you're not carbon copied on this.

6 A. I don't remember. But obviously he's asked
7 Mr. Horner for -- well, obviously Mr. Larkin saw the
8 Indianapolis settling basin and wanted one like it at
9 Saint Louis Park and he wrote a letter to Mr. Edwards
10 and Mr. Edwards asked Mr. Horner to prepare an estimate
11 which he probably did. I don't know that he did. I
12 don't know. I don't even remember this at all.

13 Q. Okay. Your interpretation of the letter I
14 guess is that in 1951 Mr. Larkin may have been asking
15 for a modification of the settling basin that was
16 designed a decade earlier?

17 A. Yes.

18 Q. Do you have --

19 A. From my knowledge, no, I don't remember this
20 at all.

21 Q. So you have no present recollection of this
22 subject matter at all?

23 A. No. No, I don't. I don't even know Mr.
24 Larkin had ever made this request.

25 Q. Do you have any present recollection of

1 discussions in the early 1950's relative to
2 contamination of the drainage water at Saint Louis Park

3 A. No, I don't.

4 Q. So you can't shed any light of your own
5 knowledge as to what that contamination was or any more
6 details about that?

7 A. No, I can't, huh-uh.

8 Q. The settling basin that you designed in the
9 early 1940's was, I take it, part of the waste water
10 handling system of the Reilly plant?

11 A. Yes.

12 Q. Did you have any involvement in addition to
13 that relative to the disposal of waste water at the
14 Reilly facilities?

15 A. In addition to designing the settling basin
16 at Saint Louis Park?

17 Q. Yes.

18 A. Yes.

19 Q. Can you tell me what those additional things
20 were?

21 A. Well, I was involved in building the API
22 settling basin at our Indianapolis plant.

23 Q. I'm going to try to limit myself to the Saint
24 Louis Park facility.

25 A. Oh, Saint Louis Park. Well, no. Your

1 question is do I have anything else to do with -- no, I
2 don't.

3 MS. COMSTOCK: Perhaps you can restate
4 the question so he's clear on it.

5 Q. Sure. Let's be sure about that. In your
6 role as engineer, regardless of the time frame, in your
7 role as engineer with Reilly Tar did you have any
8 involvement in the waste water disposal system at the
9 Reilly Tar plant in addition to the settling basin of
10 the early 1940's?

11 A. All right. We designed -- well, we were
12 going to put in an Edens separator. We did a lot of
13 work on that and run a sewer to the city sewer and we
14 revamped, had some plans for revamping tile for doing
15 that. But I did quite a bit of work on that. But
16 that's all I can remember.

17 Q. Would your recollection be that those tasks
18 were in the early 1970's?

19 A. Yes. Correct.

20 Q. Did the plant close before the Edens
21 separator was installed?

22 A. The Edens separator was never purchased.

23 Q. Was the plant closed before any of the waste
24 water was disposed into the sewer system?

25 A. We never connected to the sewer system

1 because we never could get permission. We did get
2 permission, but by that time the plant was -- we did
3 get permission just before they decided to close the
4 plant or just about the time they decided to close the
5 plant, yes.

6 Q. So I take it that the tiles -- there was
7 never a reason to revamp the tiles?

8 A. No. That's correct.

9 Q. With regard to the Edens separator, were
10 there any limitations regarding the quality of the
11 effluent from that which you were operating under?

12 A. By that question I assume you mean did the
13 city tell us what they would accept.

14 Q. City, State or any governmental agency.

15 A. Well, the people that finally gave us
16 permission to go into the sewer gave us a limit on oil,
17 but they did not give us a limit on phenol. They said
18 that would come later. That's as I remember.

19 Q. Do I understand this right that to get the
20 water of necessary quality to go into the sewer you
21 would install the Edens separator?

22 A. That is correct, yes. That's right.

23 Q. The compounds or the things that were being
24 measured regarding the quality of the water into the
25 sewer were oil and phenols?

1 A. Correct.

2 Q. That was all there was? Is that all that
3 there was that was being measured?

4 A. That's all that I remember.

5 Q. And you got certain paramaters for the oil
6 and never did get the paramaters for the phenols?

7 A. Right.

8 Q. What was the nature of your involvement in
9 those matters, the Edens separator and the sewer?

10 A. Well, the nature was we got off to a false
11 start. We designed an API separator and then we heard
12 about this Edens separator which is a manufactured
13 piece of equipment. And Mr. Justin and I went and
14 looked at it and talked with the manufacturer. He
15 assured us it could do the job, and we were assured by
16 ourselves in our own mind that it could do the job. So
17 we were going to buy it. We told him as soon as we got
18 the authorization to proceed we would buy the separator
19 We had a quotation. We had delivery and everything
20 else. This would have speeded up the work quite a bit
21 because we could have put in a foundation for it and
22 this thing was going to sit -- the bottom of the Edens
23 separator was going to be right at ground level sitting
24 on a foundation. So this would have been a lot quicker
25 than building forms and building a concrete one. It

1 would have speeded up the work quite a bit. I was
2 involved in all that. Actually we had the foundation
3 designed. We had the sewer designed. We went about as
4 far as we could go until we actually got it. The next
5 step was to buy the separator. That's as far as we
6 went. Then we were stopped because we never got any
7 authorization.

8 Q. Now, especially from yesterday's discussions
9 I think I understand your involvement relative to
10 designing the foundation and designing the structural
11 elements necessary for the installation of this
12 equipment.

13 A. Right.

14 Q. Piping or whatever else might be necessary.
15 Were you involved in the decisional process to choose
16 separator A over separator B?

17 A. Yes. Yes, I was.

18 Q. So you also then were involved in judging the
19 relative efficiencies and effectivenesses of different
20 available equipment?

21 A. Correct.

22 Q. Okay. Did your tenure at Reilly Tar give you
23 any experience in toxicology?

24 A. Toxicology?

25 Q. Yes.

1 A. I'm no chemist. I'm no chemist at all.

2 Q. How about hydrology?

3 A. Well, you mean hydraulics?

4 Q. No. I mean, I'm not sure. I don't know

5 enough to know what I mean. I mean the flow of

6 underground water.

7 A. Flow of underground water?

8 Q. Right.

9 A. No. I know very little about the flow of

10 underground water.

11 Q. How about the flow of the permeation of

12 surface waters to underground waters through the soils.

13 Do you have any background or expertise in that?

14 A. No, I don't.

15 Q. A few questions ago I asked you a kind of a

16 general question about your involvement relative to the

17 waste water disposal system at the plant. I'm going to

18 ask a similar question asking for your involvement

19 relative to the Saint Louis Park plant, if any.

20 A. All right.

21 Q. Relative to government regulations or matters

22 of environmental concern through government agencies,

23 whether city, State or otherwise, did you have any

24 involvement in that area?

25 A. Yes, I did.

1 Q. Could you tell me the subject matters of that
2 involvement?

3 A. The Army requested permits, you know, for
4 disposal of waste water. I did all the work necessary
5 to fill out the permits for the Army. I say I did all
6 the work. I had the form filled out and so forth and
7 work was done by Twin Cities Testing Lab or somebody up
8 in Minneapolis. Herb Finch hired them to do it. Then
9 we found out we didn't have to file it for two plants,
10 for Minneapolis and for Ironton. Then there was a
11 lawsuit up at Ironton against the Army. And the whole
12 result of that, we weren't involved in the suit, but
13 the result is we had to file at Ironton. So that was
14 my involvement.

15 Q. Any other involvement relative to the Saint
16 Louis Park facility?

17 A. Well, of course, as I testified yesterday or
18 told you yesterday, I did the structural design on the
19 basin that was there in 1941 I think it was.

20 Q. Yes. Yes. Anything else?

21 A. I was involved in the design of the straw
22 filters that were put into the effluent sewer.

23 Q. Okay. Yes. Anything else?

24 A. Well, I wasn't involved in any of the
25 settling tanks so I guess there's nothing else.

1 Q. No other activity relative to government
2 regulation of the facility at Saint Louis Park?

3 A. You're talking about Saint Louis Park?

4 Q. Only.

5 A. No. Not for Saint Louis Park.

6 Q. The work for the Army permit, that was
7 relative to the waste water generated from the Reilly
8 plant in Saint Louis Park?

9 A. Yes, it was.

10 Q. The work of Twin City Testing, was that
11 measuring the quality of that water or do you have any
12 recollection of that?

13 A. The Army required all kinds of paramaters. I
14 can't remember what they were. But they must have
15 tested for I don't know how many things. If I had to
16 guess, I'd say about ten paramaters. I don't remember.

17 Q. Let me show you this piece of paper. It's
18 one of the documents included in State Exhibit 21E.
19 And for clarity of the record let's say that we're
20 looking at a report of Twin City Testing and
21 Engineering Lab of December 29, 1969, stamped 302455.
22 Mr. Hennessy, is that document an example of the
23 testing for the Army?

24 A. I believe so. I think you've got copies of
25 the papers on that, but I'm sure that's why this was

1 done.

2 MS. CONSTOCK: This is the entire
3 Exhibit if you want to look at it. You can just flip
4 through.

5 A. All right. This is 21E. There it is. I'm
6 quite certain this is why that was done. But I don't
7 see any reference here.

8 Q. Exhibit 21 doesn't have the Army permit as
9 part of it. My question really is if that listing of
10 paramaters would be the paramaters that the Army called
11 for.

12 A. My guess is that's it. That's why it was
13 done.

14 Q. In October of 1970 the city of Saint Louis
15 Park and state of Minnesota commenced a lawsuit against
16 Reilly Tar. Did you have any involvement in the
17 management of that litigation at that time?

18 A. No.

19 Q. Were you aware that the lawsuit existed at
20 that time?

21 A. Oh, I'm sure I heard about it. You know,
22 people talk to each other.

23 Q. Is it fair to say that your knowledge of that
24 lawsuit was simply by the way casual conversation with
25 others in the company?

1 A. Yes, I would say so. Because I wasn't
2 involved at all.

3 Q. Yesterday there was some discussion about
4 changing of tankage from underground to above ground.
5 Part of the discussion involved the fact that
6 below-ground tanks could, if they were not full, could
7 float with sufficient flooding or waters around them.
8 As a consequence there could be bending at the
9 connection to the piping and potential leaking. Did
10 you see any of that yourself?

11 A. No, because only people that would go down
12 there and look at them would see it. I mean, this
13 would be plant personnel that would do that. I didn't
14 see it myself, no.

15 Q. Do you know what was done with any residue in
16 the tankage when tanks were removed to above ground?

17 A. I don't know what Herb Finch did with the
18 residue from the tankage.

19 Q. When you changed the stills, would there be
20 any -- I take it whatever residue in the stills would
21 be the scaling?

22 A. No. There would be no residue in the stills.
23 They would have been blown clean before they were
24 charged again.

25 Q. You mentioned yesterday some of your

1 structural work designing for the installation of
2 pilings to support various structures or tankage.
3 Would you tell me something about the property at the
4 plant that required the use of pilings?

5 A. The plant was built on a fill. It was built
6 about '18, '17 and '18, somewhere in there, maybe '19.
7 And there was a fill of I don't know how many feet,
8 something like ten feet, in the vicinity of the
9 treating building. So whatever we built there that had
10 any weight at all to it had to be piled.

11 Q. Do you have any knowledge regarding the
12 conditions of any other parts of those 80 acres?

13 A. Yes. The foundation conditions around the
14 refinery building were very good. I mean, that ground
15 tested very well and it would support equipment without
16 piling.

17 Q. Do you have a sense of -- maybe you don't but
18 if you do I'll ask the question to find out if you do.
19 Of the of the 80 acres of the Reilly Saint Louis Park
20 facilities do you have any sense of what percentage
21 would require pilings or other special support for
22 foundations?

23 A. No. I don't have any idea of that because
24 the area we built on was a very small part of the plant
25 Most of the plant was used for seasoning ties and poles

1 and, of course, you needed no piling for that.

2 Q. In your review of documents either for this
3 deposition or otherwise have you seen reference to
4 stabilizing the yard for the tie area?

5 A. Well, I don't remember seeing it, but they
6 did stabilize the yard, yes.

7 Q. Why was that necessary?

8 A. Well, you had to build a road. They have big
9 lift trucks that handled tie piles or ties and they
10 have cranes that run on the roads. And in order that
11 they don't mar down in mud during the rainy season,
12 they have to more or less build roads just like you'd
13 build a tar road with gravel or whatever. Same way you
14 build a road outside except that the road wasn't as
15 good. They didn't go to as much trouble as you'd go
16 outside. Just enough to stabilize it.

17 Q. So stablization in your background means
18 building a road?

19 A. Yes. Building a surface that can run their
20 equipment over without marring down in the mud. That's
21 what stablization is.

22 Q. It doesn't relate to settling of the ground
23 because of the weight of the ties?

24 A. No. They don't care if the ties settle. The
25 only thing the customer would complain bitterly if you

1 had a big puddle of water that stayed under a tie pile.
2 If they're his ties you were seasoning he would
3 complain. But as far as stabilizing the ground in
4 under the tie piles, I don't believe -- to my knowledge
5 they didn't do it.

6 Q. A different topic in a way but we talked
7 about it before. Did the Indianapolis plant have a
8 settling basin in 1938 as you recall?

9 A. Yes.

10 Q. Do you have any knowledge as to when the
11 Indianapolis plant first had a settling basin?

12 A. I don't know when that settling basin was
13 built, but I would guess it was in the '20's.

14 Q. A different question for my clarification.
15 There was discussion yesterday about a sewer and that
16 being a ditch at some point in time. From your
17 knowledge if I heard you right it was always a ditch?

18 A. Oh, no. No. No. No. It had been a tile
19 all along at one time. And I can't remember how much
20 of it was opened up, and I don't know why it was opened
21 up. I don't know whether the tiles collapsed under the
22 weight of cranes or what. But I definitely remember
23 seeing the ditch back in at least on the west side of
24 the plant. It was a ditch.

25 Q. Was it a ditch the first time you went to the

1 Reilly site?

2 A. I don't know. See, that would be -- I'd have
3 to walk clear across the plant to look at it, and I had
4 no purpose or point to do that. That wasn't why I was
5 there.

6 Q. The first time that you were in that location
7 of the plant was it a ditch?

8 A. I don't remember. I couldn't tell you.

9 Q. Okay. Mr. Hennessy, let's look at State
10 Exhibit 20.

11 A. State Exhibit 20.

12 Q. If you'll review the documents and then I'm
13 going to ask questions about the second to the last
14 paragraph.

15 A. Okay.

16 Q. In particular I have some questions about the
17 second sentence of that second to the last paragraph.
18 You'll see it reads, "I believe we should tell the city
19 how much oil will remain in the discharge and see if
20 they will accept it." You see that sentence?

21 A. Yes.

22 Q. Do I correctly infer that there will be oil
23 in the discharge after it goes through the separator?

24 A. There would be about half as much as the city
25 would have allowed us.

1 Q. In other words, you would have been twice as
2 good as the city limits?

3 A. That's correct.

4 Q. Okay. A simple question is to say that the
5 separator does not remove 100 percent of the oils?

6 A. Oh, no. No. It's impossible. That would be
7 perfect settling.

8 Q. Right. I take it that the basin designed in
9 the early '40's also did not remove 100 percent of the
10 oil?

11 A. No, it did not.

12 Q. As between the basin of the early '40's and
13 the settling basin referenced in State Exhibit 20, was
14 one more effective in the removal of oils than the
15 other?

16 A. I'm sure it was, yes.

17 Q. Which one was more effective?

18 A. The later design was more effective.

19 Q. So the later design would remove a greater
20 percentage of oils than the 1940 design?

21 A. Yes.

22 Q. Perhaps a difficult question, but do you have
23 any way of making a relative comparison with more
24 precision than greater than?

25 A. No. Because I know that chemists have

1 checked the effluent from both separators, but I can't
2 remember the figures. 1941 was a long time ago. I
3 can't remember. But I know after the basin was built
4 it was checked.

5 Q. When the settling basin was designed in the
6 early '40's, if I understood your testimony yesterday,
7 it was made of sufficient size to handle the expected
8 waste water flow plus the expected rain waters or snow
9 melt measured from a particular area on the plant site?

10 A. That's correct.

11 Q. And then I assume you had some safety factor

12 A. Oh, yes.

13 Q. -- into that as well?

14 A. Um-hum.

15 Q. Is it correct that your understanding in the
16 early 1940's was that the plant properties did not
17 flood out in the rainy seasons?

18 A. I had never heard of it flooding out. I
19 won't say it didn't, but I never heard of it.

20 Q. Consequentially, accomodating a flood
21 condition was not one of the design criterion of the
22 settling basin?

23 A. Oh, no, not in the '40's, no. We did take
24 that into account with the Edens separator though later.

25 Q. Yes.

1 A. Right.

2 Q. But it was not taken into account in the '40'

3 A. No. No. That's correct.

4 Q. Between the '40's and the planning for the
5 Edens separator there was no change in size of the
6 settling basin at Saint Louis Park, was there?

7 A. No. No. Huh-uh.

8 Q. After the settling basin was installed you
9 were then asked some questions about operating
10 instructions given to plant managers in written form.
11 My question is whether you have a present recollection
12 of written operating instructions for the settling
13 basin or instead whether you are assuming on your
14 experience that that would have been done. Do you
15 understand that question?

16 A. I understand the question. I think I'd have
17 to answer it by saying that I assume because I can't
18 remember distinctly writing anything. But I assume
19 that we gave the plant manager a general operating
20 instruction for the basin and then the plant manager
21 would give detailed instructions to the men that were
22 in charge of operating it.

23 Q. Jumping forward now to I think early 1950's
24 or maybe 1951, in any event, the first installation of
25 the straw filter at the Saint Louis Park facility. I

1 believe that yesterday you said that the purpose for
2 that was to improve the appearance of the discharged
3 water?

4 A. That's correct.

5 Q. To your knowledge was there any other purpose

6 A. Well, it would take out the floating oil and
7 it would clean up the effluent that much more, sure.
8 That would be the purpose of it.

9 Q. Sure.

10 A. It wasn't just cosmetic. I didn't mean to
11 leave you under that impression.

12 Q. I guess where I am coming from is that
13 appearance will be improved because the oil will be
14 filtered out?

15 A. It definitely will be improved. Very
16 definitely improved.

17 Q. Sure. That's like apples are red because
18 it's an apple, you know. Because the straw filter
19 works the appearance will be improved.

20 A. That's correct.

21 Q. Do you have a recollection of what the
22 reasons were that prompted consideration of the
23 installation of the straw filter?

24 A. I don't remember why or what prompted the
25 installation of the straw filter.

1 Q. Just as a short follow-up, do you have any
2 recollection of anybody in the early 1950's raising
3 environmental concerns with contamination of surface
4 waters?

5 A. No. I never heard of any.

6 Q. Any recollection of environmental concerns of
7 health risks arising?

8 A. No.

9 Q. Getting back to flooding again, during maybe
10 the twelve times that you were at the Saint Louis Park
11 facilities am I correct that you saw it flooded on one
12 occasion?

13 A. Yes. I saw the refinery floor was under
14 water and water was over the road and cars running to
15 the west of the refinery if you'd open the door I think
16 water would have run into the car. I mean it was that
17 deep.

18 Q. Is that the only occasion that you personally
19 saw flooding?

20 A. That is the only occasion I personally saw
21 flooding, yes.

22 Q. Would your additional understanding regarding
23 that topic have been acquired through being carbon
24 copied on memoranda or just general discussion with
25 personnel either by telephone or in person?

1 A. You mean of additional flooding?

2 Q. Yes.

3 A. Well, the plant let us know about it through
4 letters and pictures. They actually took pictures and
5 sent us the pictures.

6 Q. Do you have a time frame for the occasion
7 that you saw the flooding?

8 A. It had to be in the '50's. It might have
9 been in the early '60's. It may have been -- it seemed
10 to be that it was rather late because I believe the
11 electrode pitch plant was already in operation when I
12 saw it.

13 Q. That was installed approximately when?

14 A. Well, it was completed -- I think my report
15 to Mr. Horner telling how it operated was written in '5
16 if I remember correctly.

17 Q. Did you ever see storm waters being
18 discharged onto the Saint Louis Park facilities through
19 the sewer or a sewer?

20 A. Yes. There was a pipe. I don't know how big
21 it was. I'd say it was a pretty good size, about 18
22 inches if I had to guess.

23 Q. It was located where?

24 A. It was located on the east bank, the east
25 side of the plant.

1 Q. Did it go under a bridge or railroad bridge?

2 A. No. The pipe just came into our plant and
3 ended just right there. There was the effluent right
4 there.

5 Q. On the east side?

6 A. Um-hum.

7 Q. With reference to state Exhibit 9 can you
8 locate on the east side approximately where on the east
9 side that was?

10 A. Well, let's see. I would say it was, I
11 believe, probably right about in here or over in here
12 maybe. I believe Louisiana Avenue came down here later
13 on. I think this is an older map, if I'm not mistaken.
14 I don't know what the date is. But anyway, it was
15 right around in this area.

16 Q. Right around an area approximately equal
17 distance between the words "Wheeler building" and
18 "stills, condenser pans"?

19 A. Yes. Um-hum. I'd say somewhere in here.

20 Q. To your knowledge was the engineering
21 department ever charged with the task of coming up with
22 a remedy for the plant flooding?

23 A. We were never told to do anything. But we
24 made several proposals. Several proposals were made to
25 try to detour the flooding around our refinery and

18
1 around the south end -- you know, to the south end of
2 the plant.

3 Q. Were these proposals that were initiated at
4 the engineering department?

5 A. I believe they were initiated in the main
6 office by Mr. Reilly himself.

7 Q. Mr. Reilly's proposals were directed not to
8 the engineering department for workup but to plant
9 managers, is that what you're saying?

10 A. He suggested to us that we figure out a way
11 of making a big ditch around the plant to carry all
12 this water to the sewer under Raymond Street or under
13 Walker Street I guess it is. Raymond Street's in
14 Indianapolis.

15 Q. Was there any follow-up on that?

16 A. Well, no, there was no follow-up. We did
17 what he suggested. We told him how much we thought it
18 would cost and what was involved and he immediately
19 lost interest I think. I think that was the follow-up
20 on it.

21 MS. COMSTOCK: Might we take a break
22 sometime?

23 MR. HINDERAKER: Yeah. Let's take a
24 break about 10:30. I have one page of yesterday's
25 notes and then just a few quick questions. After that

1 then I think we can take a break.

2 BY MR. HINDERAKER:

3 Q. Near the end of yesterday you were then asked
4 something about potential consequences to the settling
5 basin arising from a flood condition on the property.
6 I believe you said that it would effect the retention
7 time and it also could bring heavy oils up.

8 A. Correct.

9 Q. My question is whether you ever saw --

10 A. I did not see that, no. No, I did not.

11 Q. I take it that the question of whether heavy
12 oils are brought up from the bottom of the settling
13 basin as a result of flooding depends upon a variety of
14 circumstances?

15 A. That's right. This was a theoretical
16 question I thought. I didn't say I saw it because I
17 didn't.

18 Q. I just wanted to get that clear for my own
19 purposes.

20 A. Sure. Um-hum.

21 Q. I'm going to go to another topic here real
22 quick. In approximately April of 1972 the plant
23 property in Saint Louis Park was sold to the city of
24 Saint Louis Park. Just for a time frame. The
25 negotiations, of course, preceded that transaction of

1 April of '72. Other than Saint Louis Park Exhibit 49
2 which was the appraisal, did you have any involvement
3 in the negotiations with the city of Saint Louis Park
4 for the purchase and sale of that property?

5 A. No, I did not.

6 Q. None whatsoever?

7 A. None whatsoever, no.

8 Q. So I take it you never were at a meeting with
9 city officials to negotiate that purchase and sale?

10 A. No, I was not, no.

11 Q. And you were not an advisor or consultant
12 back in Indianapolis relative to those negotiations?

13 A. No. Those negotiations -- the answer is no,
14 I wasn't.

15 Q. To the extent you had even collateral
16 involvement in that whole process, it would be limited
17 to that appraisal, Saint Louis Park Exhibit 49?

18 A. Yes, um-hum. Correct.

19 Q. In June of 1973 approximately, 14 months
20 later, there was another transaction or there was
21 another document executed between the city of Saint
22 Louis Park and Reilly Tar. And included within that
23 document was a hold harmless provision. Did you have
24 any involvement in the negotiations for that?

25 A. No. That's strictly legal. I wouldn't get

1 involved in that at all.

2 Q. With regard to that I take it you didn't even
3 have a collateral involvement?

4 A. No, huh-uh.

5 MR. HINDERAKER: Let's take our 10:30
6 break then.

7 (At this time a recess was held.)

8 BY MR. HINDERAKER:

9 Q. Mr. Hennessy, I'm going to show you a
10 document that has previously been marked as Saint Louis
11 Park Exhibit 4. Let me hand that to you. Let me first
12 ask a couple of preliminary questions before you take
13 the time to review it. Hopefully we won't have to take
14 too long for this. This number 4 is a copy of a
15 transcript of a session at Saint Louis Park before the
16 City Council on about February 19th of 1962. Do I
17 assume correctly that you were not present at that
18 meeting?

19 A. No, I never attended such a meeting.

20 Q. The reason I pulled it out is that it
21 transcribes some of the comments made by Mr. Finch at
22 the meeting. I guess I'm using it just as a way of
23 referencing into some topics. Maybe you could go to
24 some discussions on page 23 of the document.

25 A. I've got page 23. Is this Mr. Finch saying -

1 Q. Yes.

2 A. All right. He must have talked for quite
3 awhile. Okay.

4 Q. There is some discussion there --

5 A. What do you want me to read, what's on page
6 23?

7 Q. Let me ask this question first and then we'll
8 get into that. The plant site had some wells on it.
9 Were you aware of that?

10 A. You mean when we acquired the property?

11 Q. As of 1962 the plant had some wells on it.

12 A. Oh, yes. Um-hum.

13 Q. As of the time it closed the plant had some
14 wells on it?

15 A. Correct.

16 Q. Did you have any knowledge regarding the
17 quality of the water of those wells?

18 A. The well right at the refinery was used, I
19 believe, to replenish the pond which was used to cool
20 the condensers.

21 Q. A well at the refinery. Is that the one
22 identified as Republic deep well on State Exhibit 9?

23 A. Well, I can tell you the location of it is
24 right about somewhere in here. Is there a deep well
25 here?

1 Q. See that in big words "Republic deep well"?

2 A. Oh, yes. Okay. Yes. That's the one. I
3 believe that's it. That's the well that I had some
4 involvement with.

5 Q. Do you have any knowledge of the quality of
6 the water that came from that well?

7 A. It contained sand and it contained little
8 balls of oil after it was pumped for awhile.

9 Q. Do you have any knowledge of the quality of
10 the water of any other wells on the plant site?

11 A. No. I don't know that they were being pumped
12 when I was there. I think that was the only one being
13 pumped. I could be wrong.

14 Q. We've had umpteen days of depositions by a
15 variety of people.

16 A. Who know more about the wells than I do.

17 Q. I just want to know -- I don't want to go
18 beyond your knowledge. Obviously you had different
19 responsibilities than other people at the plant or at
20 Reilly Tar.

21 A. Yes.

22 Q. To the extent you have any understanding or
23 knowledge regarding the quality of any of the wells on
24 the Reilly property, it would be with regard to the
25 Republic deep well only?

1 A. Right.

2 Q. From time to time and perhaps beginning in
3 the 1930's there would be statements made that wells of
4 residents in the area had phenolic contamination. Did
5 you have any involvement in that topic?

6 A. No, I didn't.

7 Q. None at all?

8 A. None at all, huh-uh.

9 Q. Was that true from 1938 until 1974?

10 A. Yes. I was never involved in phenolic
11 contamination of wells.

12 Q. In the late '60's there was some concern
13 raised about phenolic contamination of the drinking
14 water supply of the city of Saint Louis Park.

15 A. I saw that, yes.

16 Q. You saw that, meaning you saw a reference to
17 that in some written memoranda?

18 A. Yes.

19 Q. For the period of time up to 1974 did you
20 have any role to play in response to that issue?

21 A. No. The only well I worked with, as I said
22 before, is that Republic deep well.

23 Q. Is it accurate to say that you had no
24 involvement in accumulating data in response to any
25 allegation of phenolic contamination of the city wells?

1 A. Did I collect any data? No, I did not. No.

2 Q. You had no involvement at all in the study of
3 whether that allegation was true or false?

4 A. No.

5 Q. Or yes, you had no involvement?

6 A. I had no involvement, that's correct.

7 Q. Did you ever have an understanding that as a
8 result of the operation of the Reilly plant in Saint
9 Louis Park it had contaminated with its product or
10 compounds from its products any well in metropolitan
11 Minnesota?

12 A. No.

13 Q. So you never had that understanding?

14 A. No, I never had that understanding.

15 Q. Did you have an understanding that as a
16 result of the operation of the Reilly facilities in
17 Saint Louis Park it did not contribute to any
18 contamination of any well in the metropolitan Minnesota

19 A. Well, I had no understanding that we polluted
20 any wells, but it would be speculation. You're asking
21 me if we did or did not pollute wells?

22 Q. I understand that you had no involvement in
23 any disciplined response to that issue.

24 A. No. That's correct.

25 Q. So you had no data or knowledge relative to

1 that, correct?

2 A. That's right. You're correct.

3 Q. My next question is a different one.

4 A. All right.

5 Q. That is, whether you had any understandings
6 or assumptions relative to the issue of well
7 contamination.

8 A. No, I did not.

9 Q. You had none of those either?

10 A. No, huh-uh.

11 Q. With regard to the issue of the allegations
12 of contamination of the water supply of the city of
13 Saint Louis Park, was the allegation always that; a
14 concern about phenolic contamination from your
15 understanding?

16 A. You're talking about knowledge I had while
17 the plant was operating?

18 Q. Any time up to 1974.

19 A. I forget the question now.

20 Q. Let me --

21 A. Okay. Go ahead.

22 Q. I'll ask the question again. I don't want to
23 talk about from '74 to today.

24 A. Okay. All right. That's where I read all
25 this stuff about phenolic contamination is EPA and this

1 kind of thing. But go ahead.

2 Q. Right. I don't want to talk about 1974
3 through today. I want to talk about before 1974.

4 A. Okay. All right.

5 Q. Because there was some confusion about the
6 time frame in my question I'll try to quickly repeat
7 some of the earlier things we touched on. I take it
8 for this time period before 1974 you had no involvement
9 in collecting in a disciplined way data regarding well
10 contamination?

11 A. That's correct.

12 Q. I take it you you had no understanding one
13 way or the other with regard to that?

14 A. That's correct.

15 Q. You had heard that there was allegations of
16 contamination of wells in the city of Saint Louis Park?

17 A. I had heard actually just hearsay. I had
18 heard of bull sessions at the plant but it's not even
19 worth repeating. They were talking about -- it must
20 have been an article in the Minneapolis paper or
21 something about it and they were discussing it.

22 Q. As you recall right now, the nature of your
23 understanding with regard to that --

24 A. Um-hum.

25 Q. -- was a discussion about phenolic

1 contamination?

2 A. No. It was a discussion about well water
3 tasting terrible in wells, and there was an argument
4 between some of the residents about when it started
5 tasting terrible.

6 Q. Let's put this Saint Louis Park Exhibit 4
7 away.

8 A. All right.

9 Q. Let's look at State Exhibit 48 for a moment.

10 A. 48?

11 Q. Take a moment to read that.

12 A. I read it.

13 Q. I see you're carbon copied on it of August 4,
14 With regard to the last paragraph it says, "The problem
15 of contamination has been pretty well solved at the
16 Cleveland plant." The question is the problem of
17 contamination in what?

18 A. The question is what contaminants were they?

19 Q. No. What was contaminated?

20 A. Our effluent. The flow from the plant in
21 Cleveland.

22 Q. Speaking about the waste water?

23 A. The waste water, yes, right.

24 Q. Can you tell me how that problem was solved
25 at the Cleveland plant?

1 A. Well, it was solved in stages. First of all
2 we put in an API separator. We reported to the State
3 of Ohio for a few years on what we were putting into
4 Cuyahoga Creek I think it was. Then we asked for after
5 much negotiation, I wasn't involved in those
6 negotiations either, but we finally got permission to
7 enter the city sewer. Cleveland did the same thing
8 Saint Louis Park did. They gave us permission, but
9 they told us what we had to do to enter the sewer. The
10 only thing we had to do, which surprised me, was we had
11 to put in a cooling tar because our water was too hot.
12 They weren't complaining about the amount of oil we had
13 or phenol. They knew what we had because they tested
14 it themselves. They had some laboratory in Cleveland
15 test it. But they complained about the temperature of
16 the water. So we put in a cooling tar to cool the
17 water. That was it.

18 Q. With those accommodations discharge to the
19 sewer?

20 A. Sewer and it's still that way today. As far
21 as we know there is no problem. The only problem we
22 ever had is when the water gets too hot, why, we hear
23 about that. But that doesn't happen very often. They
24 really watch it.

25 Q. So the Cleveland plant is in operation up to

1 today?

2 A. Oh, yes, it's operating today. It's not a
3 treating plant. It's a tar plant. Refinery.

4 Q. Okay. Why don't you turn to 50.

5 MR. LEININGER: For the record that's
6 Saint Louis Park Exhibit 50?

7 MR. HINDERAKER: State 50. I'm sorry.

8 A. Okay. I read it.

9 Q. You'll notice that the last paragraph, last
10 sentence on the second page speaks to, "An overall view
11 of our water handling and a total plant toward which we
12 can proceed." Is this memorandum to your understanding
13 discussing the management of the waste water --

14 A. Yes.

15 Q. -- of the plant?

16 A. Um-hum.

17 Q. The reference to water pollution at Saint
18 Louis Park in the second line on the first page, is
19 that a reference to the quality of the plant waste
20 water as it's discharged into --

21 A. Sounds to me like Mr. Lesher was there when
22 it was in pretty bad shape and he's letting them know
23 it.

24 Q. Yeah. Is that what he's talking about,
25 quality of the waste water?

1 A. Of the effluent, yes, um-hum.

2 Q. Let's look at one more, number 23. You'll
3 see it's dated May 20, 1968, about 6 days after the
4 last document.

5 A. Okay. I've read that.

6 Q. We're looking at a work order, are we not?

7 A. That is correct, yes. Wait a minute. No.
8 This is a request for a work order.

9 Q. I see. Okay.

10 A. By Mr. White who was the plant engineer.

11 Q. The document says it covers work recommended
12 by Mr. Leshar and Mr. Hennessy.

13 A. Yes.

14 Q. What was the subject matter? What was your
15 focus here?

16 A. Focus was to get rid of the ground tanks, put
17 in overhead piping between the condensers and the
18 grounds tanks. I'm sure that's what he says here.
19 Well, that's a work record for collecting data and
20 control. This covers cleaning of the separator,
21 hauling residue away. He's going to clean the
22 separator, clean out the trench system. Insulation of
23 second straw filter. Installation of elevated blow
24 down tank for the boiler blow down water so that can
25 bypass the settling basin which it really should do, of

1 course.

2 Q. Previous to that time it did not bypass the
3 settling basin?

4 A. Previous to this time it went into a blow
5 down tank which was at ground level, and there it was
6 mixed with water to knock the temperature down and then
7 it was run through the settling basin. That was
8 previous. Now he's recommending and we did it. I'm
9 sure this is a project that went. We put in an
10 elevated blow down tank so that you could get the
11 solids out of the boiler water, settle it and then let
12 the effluent bypass the settling basin and go right
13 down the sewer because that's clean distilled water
14 really, you know. There is no point to putting it
15 through the settling basin.

16 Q. Were these modifications or improvements
17 directed to improving the quality of the waste water or
18 the effluent from the plant?

19 A. Yes, um-hum, definitely.

20 Q. That was the purpose?

21 A. That was the purpose.

22 Q. So on the document on the second line refers
23 to water pollution are we referring to the quality of
24 the waste water disposed of?

25 A. That's correct. Water pollution control.

1 Q. Let me ask this general question. I think
2 that I'll probably ask two questions along the lines
3 that we did earlier; that is, the first question I'm
4 going to ask about your knowledge and the second,
5 assuming the answer to that then if there is a
6 follow-up, I'll ask if you had any understanding.
7 Again my time frame will be prior to 1974. Okay?

8 A. Okay.

9 Q. Do you have any knowledge of any threat to
10 the quality of the Saint Louis Park drinking water
11 supply as a result of the operations of the Reilly
12 plant at Saint Louis Park?

13 A. No. I had no knowledge of any threats to the
14 Saint Louis Park drinking water supply.

15 Q. Did you have any understanding whether any
16 threat was presented or not to the drinking water
17 supply at Saint Louis Park as a result of your Reilly
18 operations?

19 A. No. I had no such understanding.

20 Q. A couple more questions, same time frame,
21 same two questions, knowledge and then understanding.
22 Did you have any knowledge of any threat to health of
23 people as a result of the Reilly tar operations in
24 Saint Louis Park?

25 A. No.

1 Q. Did you have any understanding that any of
2 the products or byproducts or any of the processes of
3 the plant in Saint Louis Park would present any threat
4 to health?

5 A. No. Everybody I knew that worked at the
6 plant was pretty healthy. Some of them had been there
7 for years.

8 Q. Would your answer be the same if we were also
9 looking at the residents of Saint Louis Park?

10 A. Well, I didn't know too many residents at
11 Saint Louis Park, but the ones I knew were healthy.

12 Q. You had no understanding that there was any
13 threat to health to employees or anyone else --

14 A. That's right.

15 Q. -- in the area, is that right?

16 A. That's right.

17 Q. Let's turn to state Exhibit 58.

18 A. 50 A?

19 Q. 58.

20 A. Okay.

21 Q. We looked at the first Exhibit 58. It is the
22 same thing as the first two pages of that Saint Louis
23 Park Exhibit 43 that was looked at yesterday? But
24 let's take your time and we'll look at this State
25 Exhibit 58 for a moment.

1 A. All right. I read it.

2 Q. Notice that you're carbon copied on the
3 document?

4 A. Yes.

5 Q. Am I correct that, this may be repetative,
6 but I believe you're not present at this meeting?

7 A. No, I was not.

8 Q. Do you recall any discussions with anyone at
9 Reilly Tar relative to this meeting after it occurred?

10 A. Well, I'm sure I discussed it with Doctor
11 Wheeler. I can't tell you exactly what he said and
12 what I said. But I'm sure we discussed it.

13 Q. Doctor Wheeler at this time was -- his job
14 title was what?

15 A. Let's see. '69. I'd say he was assistant --
16 I'd say he was assistant director of research in '69.

17 Q. Do you have any recollection of that
18 conversation at all?

19 A. No. I couldn't tell you what he said or what
20 I said. I'm sure we must have discussed it.

21 Q. As far as you can recall today, you assume
22 that you would have had a discussion with Mr. Wheeler
23 discussing the subject matters outlined in this Exhibit
24 58?

25 A. Yes.

1 Q. But beyond that you have no further
2 recollection?

3 A. That's right, um-hum.

4 MR. HINDERAKER: Off the record.

5 (At this time a discussion was held
6 off the record.)

7 BY MR. HINDERAKER:

8 Q. Doctor Wheeler was, did you say, probably the
9 director of research?

10 A. I believe that was his title at that time.

11 MR. SCHWARTZBAUER: You said assistant a
12 minute ago. Which?

13 A. He was assistant. That's right. Doctor
14 Cislak was still there in 1969. So Doctor Wheeler was
15 assistant.

16 Q. How do you spell Cislak?

17 A. C-I-S-L-A-K.

18 Q. Does the fact that he was not carbon copied
19 on this memorandum suggest anything with regard to
20 whether Wheeler was assistant or director at the time
21 of November 1969?

22 A. No. I think why he sent these copies to
23 these people -- I'm trying to reason. I suppose it's
24 because these people if anything came of it and we had
25 to do some work we were the ones that would have to do

1 the work.

2 Q. Do you recall any further following response
3 from this memorandum other than a possible discussion
4 with Doctor Wheeler?

5 A. Well, Mr. Finch says here that he's going to
6 look into the possibility of connecting into the City
7 sanitary sewer which he did, of course.

8 Q. I should be more specific in my question.
9 I'm not asking for response by the company but of
10 yourself.

11 A. Oh, no, I did nothing. Well, I say I did
12 nothing. I was very much involved in the design of the
13 Edens separator and that equipment which was never
14 built. So I was very much involved there.

15 Q. Is there any other thing that would be
16 responsive to this memo? We've talked about the Edens
17 separator. We've talked about the potential of going
18 into the sewer. Do you recall anything else?

19 A. This memo, I believe -- now I might be mixed
20 up on my dates. We did remove the underground tanks
21 and put above-ground tanks in. I don't know whether or
22 not that came before or after this. We also put in a
23 settling tank at the refinery to settle the water, you
24 know, to get a good separation. We put overhead piping
25 in. We put overhead piping between the refinery and

1 the creosoting plant. Now, whether that was in
2 response to this letter or not I don't remember. I'd
3 have to look at the dates on the thing. But we did
4 quite a bit of work. But to answer your question
5 whether I did anything in response to this letter or
6 not I don't know.

7 Q. Various things that you mentioned do I
8 understand correctly would improve the quality of the
9 waste water disposed of from the plant?

10 A. I think so, yes, um-hum.

11 Q. Did you have any understanding of whether the
12 method of disposition of the waste water at the plant
13 was such that it could contaminate the underground
14 water supply of the area?

15 A. No.

16 Q. No understanding?

17 A. No, huh-uh.

18 Q. Let's look at a Saint Louis Park Exhibit for
19 a change. Number 10. I notice that you're carboned on
20 it. Why don't you review it. My question will be
21 whether you had any discussions with anyone relative to
22 the subject matter of this proposed meeting with the
23 PCA.

24 A. All right. I read it.

25 Q. Do you recall any discussions with Mr. Finch

1 to further prepare him for his meeting with the PCA?

2 A. Well, I obviously discussed it with Mr. Finch
3 I can't remember what we discussed though. But
4 probably it would be the -- he says I told him that it
5 would be July before we could have the system in
6 operation which was true. Edens separator is built to
7 order and it's not something that you just go into a
8 store and buy off the shelf, you know. It's built to
9 your means, your specifications.

10 Q. Do you recall any other discussions that you
11 may have had with Mr. Finch or anyone else?

12 A. About?

13 Q. About what would be --

14 A. This meeting?

15 Q. -- said to the Minnesota Pollution Control
16 Agency?

17 A. No, I don't. I really don't. Because I
18 never met with him.

19 Q. Looking at the fourth paragraph, the last
20 sentence of that paragraph saying, "Any possible
21 contamination on our part would be remedied by natural
22 forces over a period of time." Do you have any
23 understanding of -- what do you understand that
24 sentence to mean, if anything?

25 A. Well, I guess I don't know what he means by

1 natural forces whether he means biological forces or
2 what.

3 Q. Did you have any discussions about
4 biodegradation of any phenols from the product?

5 A. You mean for the Saint Louis Park plant?

6 Q. Right.

7 A. No.

8 Q. As we sit here today you're not sure what Mr.
9 Finch may have meant by that sentence?

10 A. No, I don't know what he meant.

11 Q. You don't recall any discussions with him
12 about that?

13 A. I'm sure I did not discuss this part of it
14 with him. This is one of his own ideas I think. I'd
15 have to talk with him about it to be able to tell you
16 what he meant.

17 Q. When you were at the plant in the '50's, did
18 you ever observe that the ground was contaminated with
19 any of the products either raw materials or end
20 products of the Saint Louis Park plant?

21 A. Some of the ground around the tank farm was
22 discolored. It wasn't bad. Actually I thought the
23 ground looked pretty good. As I mentioned before, the
24 treating cylinders, the trams were pulled down on a big
25 concrete pad. So any dripping from the trams as it

1 left the cylinder would not go on the ground. Most of
2 the yard out there where they stored white ties,
3 nothing to contaminate the ground. The black ties,
4 they were only made to order, you know. There was very
5 little storage of black ties because they only treated
6 ties when they had a purchase order for them. They
7 were either loaded out directly from the cylinder or
8 stored for a very short time in the yard until they
9 completed the order. Then they shipped them.

10 Q. From your observations did you get any sense
11 of the extent of penetration of this contamination into
12 the soil?

13 A. Well, I'll tell you a little story. No, at
14 Saint Louis Park I did not. But in Indianapolis Mr.
15 Horner and I had a discussion one time. It got pretty
16 heated. We discussed how creosote oil would penetrate
17 the ground. He said, "If you go over there in front of
18 those cylinders and you dig down," he said, "you'll hit
19 clean gravel in about two inches." I said, "No way.
20 No way." So we went over there with a shovel and a
21 pick and we dug through the real oily sand and gravel
22 that had been pulling these trams out for years and he
23 hit clean gravel about two or three inches down. It
24 was perfectly clean. It was just white. I couldn't
25 believe it.

1 Q. So Mr. Horner convinced you?

2 A. He convinced me. He took a shovel and said,
3 "You dig a hole." Yes, He convinced me.

4 Q. From that empirical work would you assume
5 that Saint Louis Park would be of similar condition?

6 A. Well, you know, they build roads with this
7 road tar. Of course, I realize a light oil is nothing
8 like road tar and would have more penetrating ability,
9 but the stuff does form a matrix with sand and gravel
10 and rocks and things of that nature. It forms a very
11 impervious layer too. At least that's been my
12 experience.

13 Q. So based on your experience is it right that
14 you'd assume that the Saint Louis Park facility was
15 similar to the one you looked at with Mr. Horner?

16 A. Well, it wasn't as bad because the
17 Indianapolis plant had no concrete pad. This was
18 within 20 feet of the end of the cylinders. The plant
19 had been built in maybe '22 or '23 or somewhere around
20 in the early '20's. This must have happened in the '50
21 that this happened. So they had been pulling those
22 trams out for about 30 years and that's when we had our
23 little discussion.

24 Q. So your understanding would be that the Saint
25 Louis Park facility would be better than the

1 Indianapolis one?

2 A. Yes. Because in the first place all that
3 drippage would land on concrete, not on the soil.

4 Q. Awhile ago when I was asking about the
5 quality of well water you mentioned a Republic deep
6 well and we kind of let that sit. Let me ask some
7 questions about that. You mentioned that after awhile,
8 after a period of time of pumping, it would bring up,
9 what did you say, what type of substance?

10 A. Oil, little balls of oil.

11 Q. Did it have any characteristics of tar?

12 A. I don't believe it was tar.

13 Q. Did you see it yourself?

14 A. Yes.

15 Q. Did you undertake to determine the source of
16 those balls?

17 A. I didn't undertake. Maybe I assumed
18 something I didn't know. But I was sure I knew where
19 they came from.

20 Q. What did you conclude?

21 A. Well, for years before the installation of
22 the electric pump they lifted the water with air. They
23 used air to lift the water. The air came from a huge
24 (reciprocate go) compressor we had in either the
25 treating room or I think it was in the boiler room.

1 Anyway, we had a very large compressor. This
2 compressor had cylinder oil added to it, naturally, as
3 all (reciprocate go) compressors do except the oil is
4 tight. But this certainly wasn't an oilist type. Of
5 course, I just said, "Well, there is where the oil came
6 from." For years and years they've been lifting that
7 water with compressed air. There is a direct pipe
8 right to the well which would be cylinder oil which is
9 a petroleum oil.

10 Q. Did you do any or have done any chemical
11 analysis of this material?

12 A. No, I did not, no.

13 Q. When you began to give your explanation you
14 said maybe you assumed things you shouldn't have
15 assumed. What did you mean?

16 A. Well, what I meant is, you know, when the oil
17 balls came up I said, "Oh, what do you expect? They
18 lifted the water with compressed air for years and
19 years." I don't know when it must have been. I don't
20 know when they installed the electric pump. But that's
21 in here somewhere too. I know that they had to use
22 that compressor for 30 or 40 years, 30 years anyway,
23 very minimum.

24 Q. Did you form this conclusion before or after
25 you saw the balls?

1 A. Unfortunately I didn't see the balls soon
2 enough because we went ahead and installed a pressure
3 tank with all its equipment in order to use the water
4 in the well. The pressure tank worked perfectly for
5 maybe a month or so and then it quit. We wanted to
6 find out why it quit. We found that they had oil and
7 sand in all the parts, all the controls were all gummed
8 up with oil and sand. Of course, that's when I assumed
9 well, that it's that cylinder oil.

10 Q. Did you look at the little balls in the water
11 after this pressure tank had been installed and a new
12 pumping system?

13 A. I'm sure I saw the balls, yes.

14 Q. Relative in time do you have a recollection?

15 A. It was quite a bit after that, yes, because I
16 wasn't at the plant when it quit.

17 Q. Quite a bit after the time that the new
18 pumping system and the pressure tank was installed?

19 A. Yes, um-hum.

20 Q. Then when you went to the plant did you form
21 your conclusion right away on seeing the materials?

22 A. I may have even formed my conclusion before
23 because it's such an obvious source of oil.

24 Q. So your reasoning was you thought where the
25 sources of oil were you remembered the pump and you

1 concluded that was a source?

2 A. It couldn't have gotten in from the ground
3 because even the deep floods we had would never have
4 flown in the pipe. The thing was about waist high when
5 you stand up, the top of the pipe was. So it had to
6 come -- that's the only way I could figure out that it
7 got in there.

8 Q. Were you involved at all with any filling of
9 that well?

10 A. No.

11 Q. Let's look at State Exhibit 13.

12 A. State Exhibit 13. All right. I read it.

13 Q. Notice in the first paragraph Mr. Finch
14 references product losses about the fifth line.

15 A. The fifth line?

16 Q. Fifth line of the first paragraph. You see
17 in that sentence requests were made for engineering
18 assistance in this project because of product losses?

19 A. Um-hum.

20 Q. Do you have any knowledge of what products
21 were lost and the extent of that loss?

22 A. Yes. He had a header in the refinery
23 building which went to various tanks, you know, first
24 cut all in one tank, second tank to another, third to
25 another and so forth. These valves were old and

1 started leaking so that he would pump first cut oil
2 into third cut oil or you'd start pumping into one tank
3 and instead of filling the tank he thought he was
4 filling he'd fill that one and the level would go up
5 but the level would also go up in another tank. So all
6 those valves were changed. This caused quite a bit of
7 product loss because he had to rework all that stuff.

8 Q. Then the paragraph identified as Arabic
9 number 1, says, "Loss in inventory as a result of leaks
10 of undetermined origin as evidenced in the material
11 being pumped in our settles basin." Do you have any
12 understanding of what he meant by that?

13 A. Well, evidently the settling basin was darker
14 than usual. There was more oil being collected than
15 usual. So he said loss of inventory as a result of
16 undetermined origin as evidence of material being
17 pumped to our settling basin. In other words, he was
18 catching much more oil in the settling basin than
19 normal. That's what I get out of that.

20 Q. Would you have been to the plant site to
21 either observe the condition described in the paragraph
22 identified as number 1 or to observe the condition of
23 the header at the piping?

24 A. Mr. Fenoglio went. Sent him.

25 Q. So your knowledge is based upon what Mr. (Phe

1 I don't) might have told you and what Mr. Finch might
2 have told you by memorandum or by telephone?

3 A. Mr. Fenoglio was a very capable engineer. He
4 could handle it.

5 Q. I show you Saint Louis Park Exhibit 45.

6 A. Okay.

7 Q. Notice that the memorandum references a
8 decision to close the facilities at Saint Louis Park.

9 A. Yes.

10 Q. Were you in any way part of the decision-maki
11 group that came to that decision?

12 A. No, I wasn't.

13 Q. Do you have any knowledge beyond what is
14 memorialized in the Exhibit as to why the Saint Louis
15 Park facility was closed?

16 A. Well, I'm sure it wasn't too profitable a
17 plant. I believe that. I can't swear to it, but I
18 believe it was not too profitable of a plant. Plus
19 difficulties we were having or had had. It says right
20 here it's primarily based on economical and ecological
21 factors. So evidently the difficulties we had in
22 disposing of our waste and evidently the plant wasn't
23 economical so the management decided to close it.
24 That's what it says. Rising cost, dwindling raw
25 material supplies. I don't know anything other than

1 what this letter says. I wasn't in on the decision to
2 close it.

3 Q. Would you look at State Exhibit 82, please?
4 My question will be whether that Exhibit is the
5 memorandum you had in mind when you referred to Mr. P.
6 C. Reilly's suggestion of ditching around the perimeter
7 of the property.

8 A. Okay. I read it.

9 Q. Would that be the memorandum that you had --

10 A. Yes.

11 Q. -- in mind when you talked about --

12 A. I'm sure it is.

13 Q. I better finish my question. You and I
14 understand what we're saying but the transcript won't
15 be complete. This is the memorandum you had in mind
16 when you referenced Mr. Reilly's suggestion to dike the
17 perimeter of the property as a way of responding to
18 surface waters during heavy rains and so forth?

19 A. That is correct.

20 MR. HINDERAKER: If I could have 5
21 minutes to see if I'm not done.

22 (At this time a recess was held.)

23 MR. HINDERAKER:

24 Q. Mr. Hennessy, do you have any knowledge of
25 how the surface waters naturally drained in the area

1 outside and including the Saint Louis Park plant?

2 A. Well, obviously that swamp is a low point.
3 So it probably drains -- my guess is it would drain --
4 I have no knowledge, no. But obviously it must drain
5 from north, south, east and west into the swamp I would
6 imagine.

7 Q. Why don't you pull out State Exhibit 83 here.
8 I know you said that you're not a chemist. But
9 nevertheless, just because we're here we'll forge on.
10 I'm going to look at the third page of that Exhibit and
11 you'll see the heading on the left-hand margin KO01?

12 A. F001?

13 Q. Go down from "F" to "K".

14 A. KO01. Right.

15 Q. If you following the designation KO01 there
16 are a number of compounds listed.

17 A. Right.

18 Q. My question is going to be for that period of
19 time before 1974, all right?

20 A. All right.

21 Q. Did you know if any of those compounds were
22 in creosote or coal tar or any of the products of the
23 Reilly facility?

24 A. They must have been in the products because
25 we never separated them. We never refined any of this

1 material at Saint Louis Park. We never separated
2 phenol. We never separated chloramine, creosote, none
3 of these things.

4 Q. Did you know at that time that those
5 compounds were in those products?

6 A. Well, I knew that some of them we took out at
7 Haywood, at Newark, New Jersey, we took phenol out.
8 Yes, I knew they were in there, some of them.

9 Q. You knew phenol was in there. Did you know
10 of any others in there?

11 A. Paracresol and metacresol, we had a plant in
12 Indianapolis to separate those. So I knew they were in
13 there. Some of these I can't. I don't know what that
14 is. Acenaphthalene, I knew that was in there.
15 Naphthalene. Yes, we had three naphthalene plants at
16 various locations. I knew that was in there.

17 Q. In coal tar creosote?

18 A. In coal tar. It can be taken out. Okay.

19 Q. Prior to 1974 did you have an understanding
20 whether any of those compounds were carcinogenic?

21 A. No.

22 Q. Or potentially carcinogenic?

23 A. No.

24 Q. Or co-carcinogens?

25 A. No. Because people worked with them all our

1 lives.

2 Q. Did you have any understanding that any of
3 those compounds presented any kind of threat to health
4 when one comes in contact with them in a regular way?

5 A. I have to stop and think. Red wax which is
6 the very last thing you get before you get pitch or
7 before you get coke, after pitch, that will burn your
8 skin. Some people especially people with fair skin
9 cannot handle creosote ties because their skin will
10 blister. What else? I'm trying to think of any health
11 hazards we had. Those are the only ones I can think of

12 Q. If you look at the designation K035 which
13 happens to be a little more than midway down on the
14 middle column.

15 A. All right.

16 Q. My question will be whether prior to 1974 you
17 knew whether any of those compounds were in coal tar,
18 creosote or any of the Reilly products.

19 A. Of course, creosote, that's a mixture of all
20 kinds of things. I knew naphthalene was in there. I
21 don't know about benzol. I guess I don't know. A lot
22 of tar has benzol in it, but it's not supposed to have
23 I don't think -- well, at least they always complain
24 when they get benzol in the tar. Anthracene, of course
25 we had an anthracene plant here in Indianapolis here at

1 one time.

2 Q. From coal tar?

3 A. Oh, yes, from coal tar.

4 Q. Prior to 1974 did you have an understanding
5 that any of those compounds were carcinogenic?

6 A. No.

7 Q. Or co-carcinogenic?

8 A. No.

9 Q. Did you have an understanding that any of
10 those compounds presented a threat to health?

11 A. Of course, you can't breath benzene. That's
12 in there. But that will kill you if you breath benzene
13 But any of these others I don't know of any. Of course
14 naphthalene is a terrible irritant when you breath it.
15 That is, if you get a real concentrated solution of the
16 scrapers. But then it can't be too dangerous because
17 they make mothballs out of it and put it around homes.
18 You put it in closets. You can buy it at a dime store
19 in a package. We used to package mothballs. So they
20 can't be terrible.

21 Q. With regard to both the compounds that you've
22 identified under K001 and under K035 prior to 1974, did
23 you have any understanding whether those compounds
24 would present a risk to health as a result of ingestion
25 through the drinking water supply at Saint Louis Park?

1 A. No. No.

2 Q. Was it your understanding that they did not
3 present such a risk?

4 A. Well, I never even thought about them being
5 in drinking water. You certainly wouldn't want to
6 drink any of this stuff, I'll tell you.

7 Q. It was something that just never came up?

8 A. Just something that never came up.

9 MR. HINDERAKER: That is all the
10 questions I have for this morning. Thank you.

11 (At this time a lunch recess was held.)

12

13 CONTINUED CROSS-EXAMINATION

14 BY MR. HIRD:

15 Q. Hennessy, yesterday when you and I were
16 talking we discussed at some length the operation of
17 the treatment cylinders and the wood treating plant at
18 Saint Louis Park. I'm a little unclear as to whether
19 your answers referred to specific knowledge of those
20 treatment cylinders or your general knowledge of Reilly
21 treatment cylinders located in various plants.

22 A. It depends on what I was talking about. If I
23 was talking about the operation of the cylinder, this
24 is just very general knowledge. But if I was talking
25 about the design of the cylinders or how they were

1 supported or where, some sort of things of that nature,
2 then I had knowledge of that.

3 Q. By "the operation" you would include such
4 things as what kinds of things were done in the course
5 of treating specific ties? In other words, what
6 preservative is used, how steam is used?

7 A. That's correct.

8 Q. So that information would be on the basis of
9 your general knowledge?

10 A. That's correct.

11 Q. As opposed to your specific knowledge?

12 A. I'm sure that most of the oils used were
13 creosote oil from our refinery. Now, the railroads did
14 slip some oils in, but I'm pretty sure they were all
15 coal tar oils.

16 Q. You're answering with respect to the use of
17 steam in the processes with respect to your knowledge
18 of how steam is used generally or used in other plants?

19 A. Yes, generally. I was a little bit surprised
20 when you asked about the steam because I didn't think
21 that they steamed at Saint Louis Park. But I could be
22 wrong. I said so at the time.

23 Q. Okay. I just wanted to be clear. Just when
24 I reviewed the transcript of the very first day I
25 noticed that I had asked you one question and where I

1 think I'd asked you whether you were a debenture holder
2 of Reilly and the transcript came out saying I asked
3 you if you were a pension holder. I don't know whether
4 you were confused at the time when I asked.

5 A. What do you mean by debenture holder?

6 Q. What I meant was I was trying to determine
7 whether you were in any way a creditor of Reilly Tar.
8 Are you in any way a creditor?

9 A. No.

10 Q. But you do hold a pension?

11 A. Oh, yes. They pay me a pension, um-hum. But
12 they don't owe me any money other than that
13 unfortunately.

14 Q. I'd like to turn your attention back to I
15 guess an Exhibit which has been referred to under
16 various designations. This is I think Saint Louis Park
17 Exhibit 43 which is comprised of Minnesota 58 and 95
18 and an additional page in between.

19 MR. HINDERAKER: Which one are you
20 looking at? The State or the Minnesota?

21 Q. The entire composite. Saint Louis Park
22 Exhibit 43 is the composite of the two. You will
23 recall I think we discussed the flow charts that appear
24 later on in Saint Louis Park Exhibit Exhibit 43 at
25 pages 302831 and 302832. I'd like to turn your

1 attention to the third page of Saint Louis Park Exhibit
2 43, which is a one sheet supplement by Mr. Horner. I
3 believe Mr. Horner when he described the attachments
4 refers to dry weather effluent flow dated January 25,
5 1941. That's those two sheets, those two flow sheets,
6 if I'm correct.

7 A. Yes.

8 Q. What is meant by a dry weather effluent flow?
9 What would it be distinct from?

10 A. Evidently he must have meant that it didn't
11 rain during that time. That's the way I would read it.
12 Dry weather.

13 Q. Do you have any idea how these specific flows
14 were measured? Were they measured through the weir
15 that you had discussed yesterday?

16 A. I do not know whether these were measured by
17 the weir or by the sump pump. They could have been
18 measured very accurately either way.

19 Q. How would they be measured by the sump pump?
20 Excuse me. We're talking about the days before the
21 oil-water separator was installed. Was there a sump
22 pump there before the oil-water separator was installed?

23 A. That's a good question. I don't know. I
24 thought there was, but I don't know.

25 Q. The sump pump would have been immediately

1 before the oil-water separator in physical location?

2 A. Well, when we built the oil-water separator,
3 we put a new sump pump in I'm sure. That one was new.
4 But I was under the impression there was one there
5 before. See, the sewers are underground. They had to
6 lift this up into the sewer. So I really -- I suspect
7 I can't swear. I suspect there was a sump pump there.
8 But anyway, whoever measured it I'm sure either used a
9 weir or he could use the sump pump if there was a sump
10 pump. Either one's very easy to do.

11 Q. Looking at those flow records on those sheets
12 would you say that they show a dry weather estimated
13 discharge from the plant of about 50,000 gallons per
14 day?

15 A. Let's see. I never thought about it that way

16 Q. If you'd like to do some calculations from
17 the figures that are there.

18 A. I would say the average is what, 35, say 40
19 gallons a minute to make it easy to calculate. 40
20 times 60 times 24. How is that? That gives you 57,600
21 gallons. Is that what your question was?

22 Q. I was saying about 50,000 gallons since we
23 started by rounding up. That might give you a rough
24 approximation.

25 A. That's what it looks like.

1 Q. Could you turn to an early part of that
2 document from the Minnesota Department of Health dated
3 May 1938? You received this report as part of this
4 package when the whole package was copied?

5 A. Yes. Part of the whole package.

6 Q. Had you seen this report before that time?

7 A. I don't remember seeing it before that time
8 because I was in college when this was written, May of
9 1938.

10 Q. Did you join the firm in --

11 A. June 13th of '38.

12 Q. June 13th of '38.

13 A. I won't say I didn't see it, but I don't
14 remember it.

15 Q. Do you recall seeing any documents by the
16 Minnesota Department of Health talking about the
17 effluent from the Saint Louis Park plant during your
18 first few years with the company before you designed
19 the oil-water separator?

20 A. No. I don't remember seeing those at all.

21 Q. Do you remember seeing any memoranda,
22 interoffice memoranda, concerning the Minnesota
23 Department of Health's interest in the effluent from
24 the Saint Louis Park plant during that period?

25 A. I can't remember seeing any.

1 Q. Do you remember talking with anybody at that
2 time, Mr. Horner or anyone else who you would have been
3 in contact with during the period when you were
4 designing the oil-water separator about the state's
5 interest in controlling the effluent from --

6 A. The only thing I can remember about that
7 oil-water separator is I did the structural design.
8 That's about all I can remember.

9 Q. You don't remember whether anyone told you
10 that it was being done because the state was objecting
11 to the effluent that was coming from the plant?

12 A. I don't remember that at all.

13 Q. Were you involved at that time in designing a
14 phenol extraction tank --

15 A. No.

16 Q. -- to go with --

17 A. No.

18 Q. Who was involved in designing the phenol --

19 A. That I don't know, but I would -- I'm pretty
20 sure it would have been Mr. Mitchell who would have
21 done it because that's his area of expertise.

22 Q. Do you know where Mr. Mitchell is now?

23 A. He's in the hospital. Very bad off. Well, I
24 don't know. I shouldn't say that. Let's say he's not
25 in very good condition. I don't know just what the

1 problem is. I think it's cancer.

2 Q. I'm sorry to hear that. Do you know anyone
3 else who might have worked on that phenol extraction
4 tank project?

5 A. No, unless it was some of the other engineers
6 more experienced engineers than I. They weren't in the
7 department at that time. They had done some detail
8 work on it I don't know. But I did not.

9 Q. Are any of the engineers who were in the
10 department at that time other than yourself, Mr.
11 Mitchell and Mr. Horner still living?

12 A. Not to my knowledge they're not. The only
13 ones I know about are deceased.

14 Q. Did you have any occasion to talk with anyone
15 about how the phenol extraction tank would fit into the
16 oil-water separator that you were designing? In other
17 words, the relationship between the two pieces of
18 equipment.

19 A. No. I can't remember when that phenol
20 extraction tank was put in. Do you remember? Do you
21 have a date on it? I don't know. Seems to me it came
22 after the separator, but I could be wrong.

23 Q. Well, we're a bit unclear ourselves as to
24 when it was put in or quite frankly if it was put in.

25 A. Well, I wouldn't even swear if it was put in.

1 If it's mentioned somewhere it must have been put in.

2 Q. Do you remember ever seeing it when you went
3 and visited the plant?

4 A. Oh, no. When I first went to the Saint Louis
5 Park plant in 1951 or '52, whenever it was, the
6 byproducts plant was completely gutted. There was
7 nothing there, but I think there was one air compressor
8 left in the plant that was still running and that was
9 it. All the equipment had been removed.

10 Q. So your understanding was the phenol
11 extraction tank if it was installed was installed in
12 connection with the byproducts plant?

13 A. Oh, yes.

14 Q. Really dealing specifically with the effluent
15 from that plant?

16 A. I think so, um-hum.

17 Q. So it would be likely if it had been
18 installed it might have been installed sufficiently
19 upstream so it would only deal with the effluent from
20 the byproducts plant as opposed to effluent from other
21 plants?

22 A. If it was installed I'm sure that's where it
23 would have been.

24 Q. So in that case waste water --

25 A. See, we never extracted phenol anywhere else

1 but in the byproducts plant.

2 Q. So waste water from other sources would have
3 come to the oil-water separator without going through
4 the phenol extraction tank?

5 A. Oh, that's correct, yes. The phenol
6 extraction tank is just for that one process.

7 Q. Do you recall whether the Reilly lab did any
8 testing on phenol extraction during those early years?

9 A. I wouldn't be able to say. I don't know.

10 Q. Did you ever work on phenol extraction
11 operations anywhere in any of Reilly's plants?

12 A. No, I did not because I think the only two
13 places in the company where we extracted phenol, the
14 only places I can think of, is Newark, New Jersey, and
15 we may have in Chicago, but we also did in Saint Louis
16 Park. Okay. Um-hum.

17 Q. Why in Newark was that done?

18 A. Because that's where our phenol formaldehyde
19 resin plant was.

20 Q. Makes sense. Why in Chicago?

21 A. I think they had a market for it. I don't
22 really know now. But I think they had a market for it
23 to somebody that was became a light or somebody was
24 making resins and wanted it.

25 Q. They were selling the phenol?

1 A. I think so.

2 Q. So the purpose is in Newark and Chicago would
3 be to extract phonols for resale?

4 A. That's correct as opposed to not correct, the
5 effluent from being contaminated.

6 Q. If I could ask you to look again at the
7 Minnesota Department of Health report which is part of
8 one of the attachments in Saint Louis Park Exhibit 43.
9 Could you look to the second sentence of the second
10 paragraph?

11 A. All right. Um-hum.

12 Q. If I'm correct, that would read that this
13 gentleman who prepared the report who I believe is Mr.
14 Kempe you will see at the final page had information
15 that on May 16, 1938 the volume of waste water flowing
16 through the ditch in the area where you later installed
17 the separator was 200 gallons per minute and on May
18 19th the flow rate was 150 gallons per minute.

19 A. Um-hum.

20 Q. I meant the flow rate when I was also talking
21 about May 16th. Wouldn't that yield you a higher
22 volume of gallons per day than 50,000 gallons per day?

23 A. Read the next sentence though.

24 Q. The next sentence says, "This was mostly
25 surface runoff and ground water." What do you think

1 Mr. Kempe meant by surface runoff and ground water and
2 how would it --

3 A. It must have rained pretty hard. That's all
4 I can say to raise it from 35 gallons a minute to 200
5 gallons a minute and then the next day it dropped down
6 to 150 gallons a minute. Let's see, May the 16th to
7 May the 19th it must have been a pretty good rain storm.
8 That's my guess. I don't know.

9 Q. But when you calculated the capacity of the
10 separator using the flow rate, you used only the dry
11 weather flow rate?

12 A. What we tried to do when we designed that
13 thing was to contain the contaminated water at its
14 source and keep as much rain water out as possible and
15 only run it through the separator.

16 Q. How would rain water be kept out of the
17 separator?

18 A. Well, it would be kept out by -- any rain
19 water that fell outside that area would not be
20 channeled through the sewer. It could go in downstream
21 but not through the separator.

22 Q. I'm a little confused because here Mr. Kempe
23 refers to obviously surface runoff and ground water I
24 guess which are the products of a rain storm getting
25 into the ditch. How were they getting to the ditch if

1 they didn't come through the sewer for him to measure?

2 A. There was an open trench and water in the --
3 most of the rain would fall in the area of the tie
4 storage yard because it's a much greater area, and it
5 could run along the east side of the plant and down to
6 the south side of the plant.

7 Q. So based on your understanding, the rain
8 water would come into the plant at a lower point from
9 where you put -- I'm sorry -- not come into the plant;
10 come into the ditch?

11 A. Oh, sure.

12 Q. At a lower point from where the oil-water
13 separator was?

14 A. Um-hum. We tried to keep rain water out of
15 it.

16 Q. If your memory was faulty and this wasn't an
17 enclosed sewer but an open ditch that led into this
18 oil-water separator, would that have effected --

19 A. No, I didn't say an open ditch led into the
20 oil-water separator. I said an open ditch led from it
21 somewhere down in the yard. Where it says "area" or
22 "untreated lumber" from there on I thought was an open
23 ditch. No.

24 Q. From which point on?

25 A. Well, where it says untreated lumber area

1 right in there. That's where I thought the open ditch.

2 Q. You're referring to Minnesota Exhibit 9 when
3 you say that?

4 A. Yes. Correct.

5 Q. Okay. But my question is if your memory was
6 faulty and this was indeed an open ditch leading into
7 the oil-water separator, then rain water and surface
8 runoff would go through the oil-water separator?

9 A. Yes, it would. It would.

10 Q. If you read further on in the paragraph I
11 think the fourth sentence it says, "A thick
12 accumulation of tar was present on the sides and the
13 bottom of the ditch," and then goes on to say, "The
14 waste was milky containing floating oil, emulsified oil
15 and settled tar." Would this milkiness be the product
16 of an oil and water emulsion or a water and oil
17 emulsion?

18 A. Any milky oil-water mixture I've seen was an
19 emulsion. Now, I don't know what this man saw. But I
20 would suspect it was an emulsion, yes.

21 Q. And the settling basin that you designed
22 would not be very effective --

23 A. No.

24 Q. -- in settling out an --

25 A. It will not settle out emulsified oil, no.

1 You have to keep emulsions out of it.

2 Q. If you read further in the same paragraph the
3 next couple of sentences I believe say as follows,
4 "The road ditch between Walker Street and the plant
5 contained a tar accumulation of about 6 inches deep.
6 Oily water extended over the surface of the bog and
7 much of the vegetation and peat was covered with tar."
8 Do you have a sense from reading those two sentences at
9 what part of the plant area or the area just outside of
10 the plant Mr. Kempe was referring to? And if it would
11 help you to refer to Minnesota 9, please do so.

12 A. He says it extended over the surface of the
13 bog and just reading his English I would say that he
14 was talking about this area -- let's see. Where's our
15 sewer here? I'd say he was talking about this area
16 right here.

17 Q. Or perhaps it might be better here on this
18 map which is Reilly Tar 3. Do you mean this area below
19 where State Highway 7 is marked?

20 A. Let's see. Where's our plant? Here we go.
21 I don't know where it crosses but somewhere right in
22 here.

23 Q. Around where?

24 A. Where it says State Highway.

25 Q. Just above Lake Street?

1 A. Yes. Between State Highway and Lake Street.

2 Q. Below the curve, directly below the curve and
3 Walker Street?

4 A. Hold it. Wait a minute. That's right. This
5 is Walker Street. I think the bog extends clear over
6 here. So it would be here along Walker Street.

7 Q. Along where Walker takes a curve upward?

8 A. Beginning of the curve I'd say right there.

9 Q. When you were involved in designing the
10 oil-water separator, were you aware of any efforts to
11 clean up the surface of the bog or the vegetation about
12 the same time that you were constructing the separator?

13 A. No, I was not.

14 Q. On any of your visits to the plant did you
15 observe oily water on the surface of the bog or peat
16 covered with tar as Mr. Kempe observed in this location?

17 A. When I walked down to that bog which was
18 about 1961 or somewhere around in there, the grass was
19 growing real high and there was some -- well, the grass
20 was brown right near the water, but right a few feet
21 away from the water it was growing like mad and it was
22 very high.

23 Q. By brown do you mean covered with some sort
24 of tarry substance?

25 A. Not tarry substance. It looked like it had

1 been stained with oil I would say.

2 Q. Did you see any oily water on the surface of
3 the bog?

4 A. I saw very little where the sewer flowed into
5 it.

6 MR. HIRD: Off the record.

7 (At this time a recess was held.)

8
9 (At this time the requested portion of
10 the record was read aloud by the Court
11 Reporter.)

12 BY MR. HIRD:

13 Q. I think the question that I asked was when
14 you visited the plant, and I believe you testified that
15 the only time you really went down and looked at the
16 bog was in about 1962, did you see any oily water on
17 the surface of the bog as Mr. Kempe apparently saw in
18 May 1938?

19 A. As I remember, there was a very slow flow
20 into the bog and there was a back flow against the
21 shore and there was a little bit of oil right up
22 against the grass just floating and the rest of it was
23 clear. That's my recollection. This was a nice, sunny
24 warm day.

25 Q. Were you ever involved in any testing of

1 water that came through or into the swamp or bog?

2 A. No, I wasn't.

3 Q. Whether before or after the installation?

4 A. I wasn't involved in testing of water at all.

5 Q. Were you aware of the tests and their
6 procedures and results?

7 A. Which tests now?

8 Q. Any tests and their procedures and results.

9 A. I was familiar with the test made for the
10 Army to fill out their forms made by Twin City Testing
11 Labs.

12 Q. Any tests of this water before that date?
13 Were you aware of any tests of this water before that
14 date?

15 A. No, I wasn't.

16 Q. Why were you involved in the Twin City
17 testing?

18 A. They gave me the job of filling out all these
19 forms that the Army required for all our plants. At
20 that time I don't remember how many plants we had, but
21 it was quite voluminous, the paperwork. So I had a
22 couple of my engineers helping me and then we had the
23 samples taken by -- I don't even remember who took the
24 samples. But anyway, each plant manager hired a
25 chemical laboratory that they knew was competent in

1 their area and they had these tests that the Army -- we
2 had to run the tests to answer the questions because we
3 didn't know.

4 Q. What kind of tests were taken?

5 A. You know, we discussed it yesterday. There
6 were about ten parameters they wanted to know.

7 Q. Were there any tests taken in the ditch that
8 came out after the oil-water separator at Saint Louis
9 Park?

10 A. I would assume that the samples were taken
11 just before the water left the plant, but I wasn't
12 there when the people sampled it. But that's why it
13 should have been taken.

14 Q. But after leaving the separator?

15 A. Oh, yes. Yes. That's what they were
16 interested in.

17 MS. COMSTOCK: It seems there is some
18 confusion about the time period you're talking about.
19 You're talking about in general as opposed to --

20 Q. I think we're both talking about the Twin
21 City testing that was done about the time of the Army
22 materials permit which I believe was --

23 A. '69.

24 Q. '69, '70 I think we were both clear as our
25 testing period.

1 A. Um-hum.

2 MS. CONSTOCK: All right.

3 Q. Mr. Hennessy, I'd like you to take a look now
4 at Minnesota document number 79. You may want to take
5 a minute to look over this document because I think I'm
6 going to ask you some questions from various parts of
7 it.

8 A. Okay. I read it.

9 MR. SCHWARTZBAUER: You didn't read the
10 last page.

11 A. Oh, there is another page.

12 Q. Do you know who Mr. McLellan is?

13 A. No. I don't know the man at all.

14 A. This was written 14 days after I graduated
15 from college I think.

16 Q. But you knew Mr. Edwards?

17 A. Oh, yes, I knew Mr. Edwards very well.

18 Q. What would Mr. Edwards' position have been at
19 this time?

20 A. Mr. Edwards was Mr. Reilly's assistant. He
21 was the man in the management directly under Mr. Reilly
22 I would say.

23 Q. Would you from reviewing Minnesota 79 and
24 your familiarity with the operations of the company
25 conclude that this would be an ordinary interoffice

1 memorandum of the sort that would be regularly kept by
2 Reilly Tar and Chemical Company?

3 A. Um-hum. Yes.

4 Q. I'd like you to focus on first the paragraph
5 4 which lists I believe 6 waste materials going to the
6 drainage ditch at the Saint Louis Park plant. Were
7 these 6 factors or sources of waste materials
8 considered when you designed the oil-water separator
9 for that plant?

10 A. On the benzol separating tank I'm not quite
11 certain where that was. But I believe it was at the
12 refinery. Water from tar acid distillation, yes, I
13 would say that was considered. Yes, it was. Free
14 water from separating from storage tanks, that was
15 considered. Sulfate water resulting from springing of
16 carbolated, I don't remember anything about that. I
17 know what it is, but I can't remember it. I don't
18 remember it. Blow off water from boilers at creosoting
19 plant and surface drainage water resulting from rain to
20 melting snow. The only thing I can't remember is
21 number 4, the sulfate water.

22 Q. But other than number four, each of these
23 sources of water was considered in your design of the
24 oil-water separator?

25 A. Pardon?

1 Q. Other than number four, each of the six -- or
2 rather of the 5 remaining sources --

3 A. I'm sure they were, yes.

4 Q. -- were considered in your design? And you
5 were aware of water coming from those sources when you
6 designed --

7 A. In 1942 I was, yes. I wasn't when this
8 letter was written.

9 Q. I realize that. It is a few years earlier
10 but it's of the period and it does list the sources of
11 waste water. So I was wondering whether you were aware
12 of those. If you move down to the bottom of the page
13 there is the figure 4,800 gallons of water per month.
14 Is your understanding of the document to refer to water
15 produced in the distillation of coal tar on a monthly
16 basis at the Saint Louis Park plant?

17 A. Coal tar is wet, has water in it, about 2
18 percent or so. When you distill it the first thing you
19 get off is your water cut. I believe this is what he's
20 talking about, the 4,800 gallons of water.

21 Q. Would this go into the drainage ditch at
22 Saint Louis Park?

23 A. This water would go to the byproducts
24 building. I think the water cut and the first cut
25 would go to the byproducts building where the phenol

1 would be extracted in the phenol extraction tank.

2 Q. For the figure 4,800 gallons of water -- I'm
3 sorry. Could you distinguish between the first cut and
4 the wet cut for me?

5 A. Well, when you take water off you get some
6 oil with it. It depends on how they cut it. But you
7 can't take just plain water off without a column, you
8 know. If you just distill it you'll get some oil off
9 with the water, so-called water cut. This would be
10 your very light oils which contain some phenol. And of
11 course, phenol would be dissolved in the water. Then
12 the first cut oil, I'm quite certain that was also used
13 for phenol extraction.

14 Q. So the wet cut would proceed the first cut --

15 A. Yes.

16 Q. -- in tar distillation?

17 A. Right.

18 Q. So if I gather correctly, your testimony is
19 that what Mr. McLellan is referring to here when he
20 uses the figure 4,800 gallons of water per month is the
21 wet cut or is it the water?

22 A. It's the water in the wet cut, yes.

23 Q. That would generally go through the drainage
24 system?

25 A. After the phenol was extracted. Now, see,

1 this is '38. I can't tell you what they did in '38.
2 But in '42 it definitely went to the phenol extraction
3 tank. Of course, this isn't sewage at that point.
4 This isn't effluent.

5 Q. Could you --

6 A. Well, it's distillation.

7 Q. Could you hold your place there. We'll come
8 back. Take a moment to look at Minnesota Number 10
9 which is earlier in the book.

10 A. Okay. This is a lot later. Okay.

11 Q. Yes. Am I correct in saying that Minnesota
12 Number 10 is a questionnaire which was prepared in
13 order to provide you with information so that you could
14 fill out the application for the U.S. Army waste
15 materials permit which you discussed a little earlier?

16 A. Let me look at it. I think you are correct.
17 This is a questionnaire sent to Mr. Finch asking him to
18 supply this information.

19 Q. But I believe the instructions are to return
20 the completed questionnaire to you, is that correct?

21 A. Yes. Right. I was in charge of getting all
22 this information together.

23 Q. Did you ever receive a completed
24 questionnaire from Mr. Finch?

25 A. Oh, yes. Yes.

1 Q. Do you recognize the handwriting on this
2 document, Minnesota 10, as Mr. Finch's handwriting?

3 A. No, I do not.

4 Q. Could you recognize Mr. Finch's handwriting
5 ordinarily?

6 A. No.

7 Q. So basically you're not sufficiently --

8 A. The reason I don't know and the reason I
9 doubt that it is Mr. Finch's handwriting is -- well, it
10 doesn't say it's a copy, does it? Let's see. He asked
11 me to send copies. I was thinking this might be a copy
12 that someone in Indianapolis copied off, but I can't
13 prove it. It doesn't say there is any copy sent to
14 anybody, does it? I'm sure I must have gotten a copy
15 though. Wait a minute. No, that's later. I can't
16 tell you whose writing that is.

17 Q. If you look under paragraph 4 there is a
18 reference under 1A of a figure for flow and the gallons
19 per day figure. I see listed here the figure of 4,800
20 gallons per day.

21 A. Yes.

22 Q. Would you consider that figure likely to be
23 accurate based on the calculations that you made at the
24 time and the figures that you had based on at the time
25 when you originally constructed the oil-water separator

1 A. Yes, I would consider this to be accurate
2 because the February 1971 I don't think there was a
3 whole lot going on at the plant. I think they had very
4 accurate methods at that time for measuring flow. I
5 have no reason to doubt the accuracy and figure at all.

6 Q. So this figure 4,800 gallons would not be
7 based on a plant in full operation as in earlier years?

8 A. This is based on what we were doing which is
9 what I think they really asked us.

10 Q. What processes were shut down by February
11 1971?

12 A. I don't believe we were making electrode
13 pitch at that time. I think the creosoting operations
14 were greatly curtailed because they weren't bringing in
15 any more lumber and they were just treating what they
16 had to order. So I think that both operations were
17 severely curtailed.

18 Q. So this figure 4,800 gallons per day would
19 not be representative of the flow during the years when
20 the plant was in full operation?

21 A. No. But it was representative of the flow at
22 this time, um-hum.

23 Q. Thank you. If I can refer you back to
24 Minnesota 79. If you look under "F" on the second page
25 of the document under the heading, "Page 1 - Byproducts

1 Department," there is a reference there to an emulsion
2 formed in extracted tar acids from oil with caustic
3 soda. Are you familiar with how that emulsion might be
4 created?

5 A. I believe when you extract tar acid oil from
6 neutral oil you do get a layer of emulsion between the
7 two.

8 Q. Would this have been produced in the course
9 of running the byproducts department at Saint Louis
10 Park?

11 A. That's what it says. Byproducts department,
12 um-hum.

13 Q. Perhaps you can help me a little bit further
14 in tracing this down because I am with my lack of
15 technical expertise not entirely clear what Mr.
16 McLellan is referring to here. Is your reading of that
17 paragraph that the emulsion has been separated into oil
18 into different substances, or that the material remains
19 in an emulsion?

20 A. He says that there are several ways of
21 breaking an emulsion. He says he's breaking it by
22 heating it. You can break it with pressure. You can
23 break it chemically or with heat. It depends on what
24 the emulsion is. He says it's placed in a storage tank
25 where heating and settling over a period of time

1 results in a recovery of oil and carbolate.

2 Q. So it is ultimately separated?

3 A. I gather. It says occasionally there is a
4 layer with the carbolate and oil which will not breakup
5 but this will be a very thin layer.

6 Q. He refers to that layer as being the material
7 that is taken out and used for weed killing around the
8 plant?

9 A. Correct, yes.

10 Q. Which would involve spraying around the plant
11 ground?

12 A. Yes.

13 Q. Were you familiar with any other spraying of
14 materials produced in the processes of the plant on the
15 plant grounds for the purpose of weed killing?

16 A. No. This is the only thing I know of that
17 they use. I don't know if they use anything else or
18 not. See, I didn't get involved in that.

19 Q. But you don't know that they did not use
20 other products for weed killing on the plant?

21 A. I didn't know they did not. They like to
22 kill weeds. I don't know whether because of the fire
23 hazard when they dry out.

24 Q. In other Reilly plants would products such as
25 this product or the byproduct department be used around

1 the plant grounds to kill weeds?

2 A. Well, we made our own weed killers and we
3 also purchased commercial weed killers.

4 Q. But products would be used in other Reilly
5 plants?

6 A. Certain products would be used, yes.

7 Q. Which products in particular?

8 A. Well, this obviously is one. There is an oil
9 from the chemical plant in Indianapolis which is used
10 for weed killing. I can't tell you what it is though.
11 Synthetic plant.

12 Q. The author of the document says that this
13 material that is spread around for weed killing amounts
14 to about 600 gallons per month. But none of it goes to
15 the ditch. Where else could it drain off to?

16 A. Well, he didn't spray it on that heavy. When
17 you spray with a weed killer I don't think you have a
18 flow across the ground. See, he's covering a big area
19 with this 600 gallons a month. He's covering a huge
20 area. I don't think there would be any flow across the
21 ground.

22 Q. About how huge an area would he cover by
23 spraying 600 gallons a month?

24 A. Well, he obviously was killing all the weeds
25 in his storage yard because of the fire hazard involved.

1 Q. Would that be the area marked "treated" and "
2 lumber area" on Minnesota 9?

3 A. Right.

4 Q. If you move down --

5 A. Also up here where it's marked "untreated
6 cross tie storage area" and also "untreated lumber
7 pilings and poles."

8 Q. So those areas as well?

9 A. Sure.

10 Q. Basically spray it around the entire plant?

11 A. In other words, out of the 80 acres maybe
12 he'd be spraying maybe 60. I don't know. I'm guessing
13 something of that order of magnitude. So he'd be
14 spraying 60 acres maybe. That's a lot of area.

15 Q. If you move down to the area under the
16 heading on page 2 next to last paragraph Mr. McLellan
17 refers to about 2,000 gallons of sulfate water being
18 produced per week and 1,200 gallons of waste from
19 benzol tanks which would bring the total of waste
20 material entering the ditch to between 3,000 and 4,000
21 gallons. Were you familiar with any sulfate water
22 discharges in that level?

23 A. No, huh-uh, I wasn't.

24 Q. Let me turn you to the last page of the
25 document and the second to last paragraph at which

1 point Mr. McLellan says, "In 1929 we gave some
2 consideration to installing settling basins similar to
3 those at Mobile and Maywood." At the time when you
4 were designing the settling basin was there any
5 reference to any prior consideration of installing a
6 settling basin?

7 A. I hadn't seen this letter. I would have said
8 "no" before I saw this. This is the first time I
9 remember seeing this letter. To my knowledge there
10 wasn't. But of course, I hadn't been there very long.

11 Q. When he's talking about settling basin
12 similar to Mobile and Maywood, would he be referring by
13 Maywood to the settling basin that you observed at the
14 time when you designed the settling basin --

15 A. Yes.

16 Q. -- at Saint Louis Park?

17 A. Um-hum.

18 Q. Was to your knowledge the settling basin in
19 Mobile constructed along the same principles?

20 A. I don't know because -- I can remember the
21 settling basin. Yes, it was a basin where -- I don't
22 know. I had nothing to do with the settling basin at
23 Mobile but it was a similar basin.

24 Q. The next sentence Mr. McLellan says that,
25 "This system would remove free materials but would not

1 remove any materials soluble in water." Would that
2 suggest to you that Mr. McLellan was concerned that a
3 settling basin installed at the Saint Louis Park plant
4 might not eliminate a portion of the oil or tar that
5 was getting into the waste water, specifically that
6 portion which is soluble to water?

7 A. A settling basin will not remove any
8 materials soluble in water. That's obvious.

9 Q. Doesn't this express a concern that a
10 settling basin might not be sufficiently effective
11 because of materials that would be soluble in water
12 passing through the basin?

13 A. Well, I have no idea what he had in mind when
14 he wrote this back in 1938. I don't know.

15 Q. But that was just three years before the
16 settling basin was installed?

17 A. That's right.

18 Q. So if Mr. McLellan was concerned that it
19 wouldn't remove materials soluble in water, your design
20 or rather the design that was installed would not deal
21 with that concern?

22 A. No. That's correct.

23 (At this time United States Deposition
24 Exhibit 3 was marked for identification by
25 the Court Reporter.)

1 BY MR. HIRD:

2 Q. First of all, let the record reflect that
3 while we were circulating Exhibits Miss Comstock
4 conferred with the witness. Mr. Hennessy, could you
5 take some time to take a look at the opening of --
6 well, why don't you review the entire Exhibit 3.

7 A. All right. Let me read the letter. I did
8 not get a copy of this one, did I? Of course, I was
9 too young at that time to get a copy.

10 A. Okay. I read it.

11 Q. Let the record reflect that United States 3
12 is a document from Mr. Mitchell to Mr. A. E. Larkin
13 dated May 1, 1940, and bears the date stamp number
14 303040 and appears to be on Republic Creosoting Company
15 interoffice correspondence stationery. Mr. Hennessy,
16 as of this date, May 1, 1940, were you familiar with
17 Mr. Mitchell?

18 A. Oh, yes, I knew Mr. Mitchell May 1, 1940.

19 Q. Was he an employee of the Reilly Tar and
20 Chemical Company in the engineering document?

21 A. Yes, he was.

22 Q. Does this document appear to you on the basis
23 of your experience with the Reilly Tar and Chemical
24 Company to be an interoffice memorandum --

25 A. It is.

1 Q. -- drafted by Mr. Mitchell --

2 A. Yes.

3 Q. -- referring to events and circumstances in
4 the course of his duties?

5 A. Um-hum.

6 Q. Mr. Hennessy, would this document by Mr.
7 Mitchell refer to the disposal waste water at the Saint
8 Louis Park plant at that time of May 1, 1940?

9 A. Well, it would certainly have an effect on
10 the disposal of waste water because this would take
11 your dissolved oils or phenol and other oils out that
12 are dissolved in the water out. This would remove most
13 of them.

14 Q. I think in the opening paragraph Mr. Mitchell
15 gives figures for waste water from the Saint Louis Park
16 refinery and the byproducts building, but does not
17 include waste waters from the treatment or creosoting
18 operation.

19 A. Which paragraph?

20 Q. The opening paragraph which ends with the
21 four numbered sentences.

22 A. All right. Um-hum. What's your question?

23 Q. That would only be a list of the waste from
24 the refinery and the byproducts building, but would not
25 include the creosoting operation?

1 A. No. This does not include the creosoting
2 operation except he does mention using neutral oil from
3 the creosote operation. But that would have nothing to
4 do with the effluent in the sewer from the creosoting
5 operation.

6 Q. So adding up the figures that Mr. Mitchell
7 gives for the waste from the refinery and byproducts
8 operations at the Saint Louis Park plant, that would be
9 about 7,300 gallons? Well, let's say just the sum, to
10 avoid us adding, the sum of 3,500 gallons, plus 2,400
11 gallons a week, plus 1,200 gallons a week, plus 2,000
12 gallons a week.

13 MR. SHAKMAN: Off the record.

14 (At this time a discussion was held
15 off the record.)

16 BY MR. HIRD:

17 Q. I'm sorry. It's a month figure. I will
18 withdraw that question. In any event, this indicates
19 Mr. Mitchell indicated a -- if I could refer you then
20 to the second to the last paragraph, about the second
21 to the last sentence. I believe Mr. Mitchell says that
22 the excess water from the distillation of tar should be
23 processed in a similar manner, referring to the process
24 that he describes above.

25 A. Right.

1 Q. Can I ask you first whether the process that
2 he describes above would be the process that you
3 understood would be operating at the phenol extraction
4 tank if that tank had been installed?

5 A. That is it. That's correct.

6 Q. I believe you testified that the phenol
7 extraction tank if it was installed was only installed
8 in order to remove phenols from byproducts production.

9 A. Well, he obviously pumped the tar wet cut
10 over there. It says so right here in the letter.

11 Q. Does it say that he did or does it say that
12 it should be done?

13 A. Well, let's see. Is this before the fact or
14 after the fact? Let's see. Okay. Distillation of
15 tars, water and light oils. So those are the cuts.
16 2,400 gallons a week. So he's planning on extracting
17 the phenol from those waters and light oils. Number
18 two in that list.

19 Q. But this has been written, I believe, as a
20 proposal for adding on a phenol tank and does not refer
21 to a phenol extraction tank in existence.

22 A. I think that is correct. This is before the
23 fact because he says, "A 10,000 or 12,000 gallon
24 digestion gallon tank with a head at the bottom to
25 facility separation of water and oil is to be

1 installed." Okay. To be installed. So evidently it
2 is designed and will be installed. He's talking about
3 what he's going to do.

4 Q. But your understanding on the basis of the
5 tanks that you saw elsewhere in Reilly and the tank
6 that you understood may or may not have been installed
7 at the Saint Louis Park plant was that it was only to
8 do deal with the byproducts operation?

9 A. The tank was -- well, extraction of phenol is
10 part of your acid plant. It was in the byproducts
11 operation, but it took -- it got its light oil and
12 water from which to extract it from the refinery. The
13 water and oil was pumped from the refinery. Water and
14 light oil was pumped from the refinery to the acid
15 extraction process.

16 Q. So basically you don't know whether the
17 phenol tank was used for the refinery process or just
18 for the byproducts process or installed at all?

19 A. It was used to extract tar acids from the
20 oils and water from the tar. Does that answer your
21 question or am I confusing you?

22 Q. I'm trying to make it clear because I think
23 you testified before that it was only used in
24 connection with the byproducts operation where it was
25 used at the Reilly plants and that you were not sure

1 whether or not it was used at Saint Louis Park. If you
2 really don't remember then perhaps that's the best
3 answer.

4 A. I don't remember. But this letter indicates
5 that he's going to build it and I didn't know what was
6 going on then. This is back in May 1940. I'm trying
7 to read the letter and tell you what I think it says.

8 Q. All right. I understand.

9 A. Okay.

10 Q. I was just trying to relieve some confusion
11 on my part. Let me ask you -- just a second. We may
12 be able to skip through a number of these documents if
13 you give me a minute. All right. I'd like you to take
14 a look now at Minnesota 80 if you would and I'd also
15 like to show you a new document in conjunction with
16 Minnesota 80.

17 (At this time United States Deposition
18 Exhibit 4 was marked for identification by
19 the Court Reporter.)

20 BY MR. HIRD:

21 Q. Let the record reflect that United States 4
22 is a document from A. E. Larkin to C. B. Edwards dated
23 July 11, 1951 and appears on Republic Creosoting
24 Company stationery and is date stamped 303071. Mr.
25 Hennessy, I'd like you to take a look at both Minnesota

1 80 and United States 4 and ask whether you have seen
2 either of those documents before.

3 A. I don't remember seeing those documents
4 before today. Of course, I saw this one this morning.
5 I think I saw both of these this morning.

6 MR. HIRD: Off the record.

7 (At this time a discussion was held
8 off the record.)

9 BY MR. HIRD:

10 Q. Did you at this time know Mr. Horner, Mr.
11 Edwards and Mr. Larkin to be employees of the Reilly
12 Tar and Chemical Company?

13 A. Yes, I did, um-hum.

14 Q. Do these two documents each appear to be
15 ordinary Reilly and Republic Creosoting interoffice
16 correspondence?

17 A. Yes. This looks like Mr. Edwards' signature.
18 I can't vouch for Mr. Larkin's, but I'm sure they're
19 legitimate letters, yes.

20 Q. Mr. Hennessy, referring first to Minnesota 80
21 when Mr. Edwards discusses a settling basin similar to
22 the one in Indianapolis, is it your understanding that
23 he is referring to the one that you constructed at the
24 Maywood plant in 1948?

25 A. Yes. I'm sure that's the one.

1 Q. Were you aware at this time on which I
2 believe is July of 1951 of an interest by the Saint
3 Louis Park plant in rebuilding its oil-water separator?

4 A. I do not remember doing any work or talking
5 with anyone about it, no.

6 Q. Do you remember it being proposed to be
7 considered?

8 A. No. I never made any estimates or any
9 designs or anything else for it that I can remember.

10 Q. How much larger was the Maywood basin that
11 you designed than the Saint Louis Park basin?

12 A. The Maywood basin I remember was designed for
13 a maximum flow of 1,000 gallons a minute. I believe
14 letters yesterday showed that the Saint Louis Park
15 basin was designed for a flow of 200 gallons a minute.

16 Q. What was Mr. Larkin's position at this time,
17 July of 1951?

18 A. He was plant manager of the Saint Louis Park
19 plant.

20 Q. In United States 4 Mr. Larkin says that after
21 meeting with Mr. Horner he learned that the plant that
22 he has can be expanded and changed in a way which will
23 give him pure water released from the plant when
24 certain changes are made. Is he referring to the waste
25 water coming through the oil-water separator, to your

1 understanding?

2 A. I never even knew of this conversation. So I
3 don't know what he's referring to, but I would assume
4 he's referring to the effluent, yes.

5 Q. Do you know of any complaints from Mr. Larkin
6 or his staff in the years immediately proceeding that
7 about the purity of the water?

8 A. To be honest about it, I don't remember ever
9 having any discussion with Mr. Larkin about anything at
10 Saint Louis Park.

11 Q. Later down in the final two lines of
12 paragraph 3 in United States 4 Mr. Larkin says, "We
13 must get our discharge water taken care of adequately,
14 and as soon as possible." Does that indicate to you
15 that Mr. Larkin was concerned that the discharged water
16 may not be clean enough leaving the plant after going
17 through the oil-water separator?

18 A. I would say that paragraph indicates that,
19 doesn't it?

20 Q. In the earlier parts of the paragraph Mr.
21 Larkin refers to a very substantial company having
22 purchased the property opposite the plant for a
23 construction of a large lumber operation. Would you
24 believe that Mr. Larkin was concerned that Reilly might
25 have some problems with its new neighbor because of the

1 effluent going into the new neighbor's property might
2 not be sufficiently devoid of pollution?

3 A. I don't know who the company was or where
4 they were going to build their plant. It says property
5 opposite our plant. I assume he means across Walker
6 Street, but I don't know.

7 Q. Do you know whether a substantial company
8 ever set up shop across Walker Street?

9 A. Not to my knowledge. They were all small
10 industries as far as I know.

11 Q. Had you heard any complaints in this period I
12 guess between 1941 and 1951 about the operation of the
13 oil-water separator and that it might not sufficiently
14 remove impurities?

15 A. No. No one complained to me about it.

16 Q. In the second paragraph Mr. Larkin says, "We
17 will ask you to have a plan made for our use so that we
18 can avoid discharging impure water into our drainage
19 system that leaves the Saint Louis Park plant." Would
20 that indicate to you that Mr. Larkin's view was that
21 the water that left the plant was not pure, was not
22 sufficiently pure for the effluent that he wanted?

23 A. This paragraph would indicate that.

24 Q. Do you know whether Mr. Horner or anyone
25 working under him ever came up with such a plan that

1 would relieve this, Mr. Larkin's concern about
2 impurities in the drainage system?

3 A. I can't remember anything about it at all. I
4 can't remember anybody making a plan or an estimate or
5 anything in 1951.

6 Q. If you'll note, Minnesota 80 is dated two
7 days after U.S. 1. Mr. Edwards in Minnesota 80 refers
8 to a letter from Mr. Larkin regarding contamination of
9 our drainage system. Would you understand what Mr.
10 Edwards is construing from Mr. Larkin's letter to be
11 that Mr. Larkin is requesting an oil-water separator of
12 the variety that you constructed at Indianapolis?

13 A. That's what the letter says.

14 Q. Did anyone ever ask you, anyone at Reilly,
15 ever ask you to construct for Saint Louis Park an
16 oil-water separator along the designs of the one
17 constructed at Indianapolis?

18 A. Well, not in 1951. Much later.

19 Q. When did they ask you to do that?

20 A. When we did the work on the Edens separator.

21 Q. That would be about 1968?

22 A. Something like that.

23 Q. Did anyone ever discuss with you around 1951
24 the idea of installing an oil-water separator?

25 A. I'm sorry but I'm a complete blank on this.

1 I don't remember anything about it.

2 Q. Was anyone else in the engineering department
3 around this time, 1951, involved in designing oil-water
4 separators?

5 A. I can't remember the years.

6 Q. Well, suppose I ask whether anyone else at
7 any time was.

8 A. Yes. Mr. Fenoglio designed the one at
9 Cleveland. I couldn't tell you who designed the one at
10 Chattanooga. I think Mr. Fenoglio probably designed
11 that one also.

12 Q. But you worked on both of those designs with
13 Mr. Fenoglio?

14 A. Yes. That's correct.

15 Q. So it would be likely if a new oil-water
16 separator would be installed at this time, seeing that
17 you had installed the one about three years ago, that
18 you would be on the project in some capacity?

19 A. I would think so.

20 Q. Could I ask you now to look at Minnesota 81,
21 please. Have you read it?

22 A. Okay.

23 Q. At the time when Minnesota 81 was written was
24 Mr. Horner chief engineer --

25 A. Yes, he was.

2
1 Q. -- at Reilly Tar and Chemical Company?

2 A. Um-hum.

3 Q. Based on your experience of many years in the
4 Reilly operation and in the engineering department,
5 does Minnesota Number 81 appear to you to be a document
6 regularly prepared by Mr. Horner in the course of his
7 duties --

8 A. Yes.

9 Q. -- in the engineering department --

10 A. Um-hum.

11 Q. -- at the time Mr. Larkin was plant manager
12 at Saint Louis Park?

13 A. That's right, yes.

14 Q. Mr. Horner begins his letter by saying, "I'm
15 sorry to hear that you are again faced with the problem
16 of contaminated effluent from the Minneapolis plant."
17 Had you heard any complaints about contaminated
18 effluent from the Minneapolis plant at that time?

19 A. I hadn't. I notice I did not get a copy of
20 this letter. I know about Maywood's problem, which he
21 says is the same thing.

22 Q. Had you ever seen a copy of this letter
23 before just now?

24 A. No. I don't believe I have. I don't
25 remember it.

1 Q. Mr. Horner worked with you on the design of
2 the oil-water separator back in 1941, had he not?

3 A. You're talking about Saint Louis Park, yes.

4 Q. Had he worked with you on the design of any
5 of the other oil-water separators you worked on?

6 A. Yes. He worked on the design at the one at
7 Indianapolis.

8 Q. When Mr. Horner says in the second paragraph,
9 "Your settling pond in Minneapolis is proportionally
10 the same size as the Maywood settling pond based on the
11 flow rates," what would you as the designer of both
12 settling ponds understand what he meant by that
13 statement?

14 A. What I understand is he meant that the
15 retention time is the same for both ponds.

16 Q. One hour?

17 A. One hour, right.

18 Q. By "ponds" he means the same thing as the
19 settling basins?

20 A. I'm sorry. Settling basin. We got to get
21 our terminology straight. All right. Settling basin.

22 Q. It's Mr. Horner's term. I want to make clear
23 that he's referring to the settling basin.

24 A. Yes, he is.

25 Q. Mr. Horner goes on to say, "The difference

1 between the two ponds is that Maywood has a mechanical
2 means of removing the sludge." Would the mechanical
3 means of removing the sludge make the Maywood settling
4 basin more effective in removing sludge?

5 A. That would be one of the things that would
6 make it more effective, yes, um-hum.

7 Q. At the Saint Louis Park plant. In paragraph
8 3 he states that, "Shortly after starting the Maywood
9 pond -- and I guess he means settling basin -- we ran
10 into serious difficulties." What kind of difficulties
11 did you run into in connection with the Maywood
12 settling basin?

13 A. Maywood was extracting acid and/or bases. I
14 think they were extracting both. They had sulfate
15 liquor left over. They ran this sulfate liquor into
16 the pond. Well, what that did was had the effect of
17 increasing the gravity of the water so that it cut the
18 settling time in the pond and caused more oil to float
19 so that he had a lot more floating oil than he had
20 previously.

21 Q. Is there any difference between the phrase "sulfate
22 liquor" and the phrase "sulfate water"?

23 A. Well, it's really -- I don't think there is.
24 Where did the term sulfate water, where was that used?

25 Q. I don't think Mr. Horner has used it in this

1 document, but I think it was used in previous documents
2 I was wondering whether Mr. Horner was referring to the
3 same thing that others had called sulfate water.

4 A. He's referring to water which has dissolved
5 sodium sulfate in it and this increases the density of
6 the water, the specific gravity of the water.

7 Q. You would understand both the terms sulfate
8 liquor and the term sulfate water to refer to the same
9 type of water?

10 A. I think so.

11 Q. Could I refer you back for a moment to U.S.--

12 MS. CONSTOCK: David, could you find a
13 time to take a short break before you rap up?

14 MR. HIRD: Why don't -- off the record.

15 (At this time a discussion was held
16 off the record.)

17 BY MR. HIRD:

18 Q. I'd like to refer you back to U.S. 3 which I
19 believe is in front of you. Would you understand the
20 phrase sodium sulfate solution, which is mentioned in
21 Mr. Mitchell's memo under the Arabic number 1, as being
22 the same thing as sulfate liquor?

23 A. I would say yes, it's the same thing.

24 Q. And Mr. Mitchell here indicates that sulfate
25 solution proceeds through in the Saint Louis Park waste

1 system at a rate of about 3,500 gallons per week.

2 A. That's what he says.

3 Q. Would you have any reason to disagree with
4 that figure?

5 A. No.

6 Q. To refer you back again to Minnesota 81, Mr.
7 Horner states that, "The addition of sulfate liquor or
8 sodium sulfate solution or sulfate water has the effect
9 of changing the specific gravity in a settling basin,"
10 is that correct?

11 A. That's correct.

12 Q. So you'd agree with that statement?

13 A. Yes.

14 Q. Mr. Horner goes on to say that the oil which
15 had been previously settled in the bottom of the
16 Maywood basin would have a tendency to rise to the top.

17 A. Well, he says the oil. That's true. But
18 only the lighter fractions of it would rise to the top.
19 You see, the oil it's a mixture of all kinds of oils.
20 And you would get a lot more floating oil and some of
21 it if it had the same gravity as the water would just
22 go down the sewer with it. It would be heavy oil, the
23 lighter fractions of the heavy oil.

24 Q. By down the sewer you would mean out?

25 A. Out the effluent of the separator.

1 Q. And past the separator and into the
2 continuing effluent and out of the plant?

3 A. Well, that's when we put the straw filter in
4 to stop this, yes, um-hum.

5 Q. So the addition of the sulfate would you then
6 believe that if gallons of sulfate water, say in the
7 nature of 3,500 gallons, were regularly going through
8 the Saint Louis Park oil-water separator it would have
9 the same effect of changing the specific gravity of the
10 oils and rising them to the surface?

11 A. That's what Mr. Horner's letter says, um-hum.

12 MR. HIRD: I think we can break at this
13 time.

14 (At this time a recess was held.)

15 BY MR. HIRD:

16 Q. Just so we can I guess clarify the records on
17 some technical points, am I correct in saying that
18 water has a specific gravity of 1.0?

19 A. Yes.

20 Q. When we were discussing the effect of sulfate
21 water or sulfate liquor, I believe we were talking
22 about oils that were heavier, which would have a
23 gravity of more than 1, and the effect of sulfate water
24 on those oils would be to lower the specific gravity
25 until it came very close to 1, is that correct?

1 A. No. I think either I misunderstood you or
2 let me phrase it another way.

3 Q. Please.

4 A. The water when it absorbs sodium sulfate is
5 heavier than water. So that the oils that weigh --
6 some of the oils weigh 1.05, you know, very small
7 amount, but they weigh 1.05, 1.07 or something like
8 that. Well, if the water gets -- I'm just pulling
9 figures out of the air. If the water gets to 1.05 then
10 the retention time for those oils that are 1.07 or 1.08
11 are going to be more than an hour.

12 Q. About how much more than an hour?

13 A. That's a long calculation. That's something
14 I can't pull off the top of my head. But it would be
15 longer than an hour. In fact, if they were the same
16 the retention time would be infinity. You could never
17 separate them. The closer they get together, why, the
18 longer it takes in the settling basin.

19 Q. Thank you very much for that clarification.

20 MR. SHAKMAN: Counsel, may I interrupt
21 for a point of clarification? Is it then a correct
22 statement that where you have the specific gravity of
23 the water at 1.05 that more heavier oils will get
24 through?

25 THE WITNESS: The lighter fractions of

1 the heavier oils would then float or they would either
2 go through or they would be caught with the light oils
3 on top. If they were very close a lot would go through
4 If the retention time, required retention time, was
5 more than one hour they would go through, correct.

6 Um-hum.

7 BY MR. HIRD:

8 Q. You weren't able to give me an exact estimate
9 of the increased retention time, but by what kind of a
10 factor would it increase, say, if you're dealing with a
11 situation where the water then had a specific gravity
12 of 1.05 because of the --

13 A. It might be -- see, our retention time
14 actually is a half hour. But we designed the basin for
15 an hour. So if the retention time gets longer than an
16 hour, some of the oil won't be caught.

17 Q. But I'm trying to figure out if you did have
18 the situation, to use your hypothetical, of sulfate
19 water essentially having a specific gravity of 1.05 and
20 picking up oils with a specific gravity of 1.05, how
21 much longer of retention time would you need?

22 A. Oil with specific gravity of 1.05 would be
23 forever. You'd never separate them. They'd just float
24 around together. You have to have a differential. You
25 must have a gravity differential for a settling basin

2
1 to work.

2 Q. So the closer the specific gravity between
3 sulfate water and the oils, the longer the retention
4 time would be, and if the specific gravities were
5 identical, you'd need an infinite retention time?

6 A. Settling basin just wouldn't work. If you
7 put oil at 1.05 and water at 1.05 it wouldn't do
8 anything. It would just be a wide place in the pipe.

9 Q. Now, Mr. Horner in describing the settling
10 basin at Maywood says that, quote, "We have found that
11 there is sufficient oil in our effluent in Maywood with
12 a gravity similar to water, or to one, which the
13 detention pond does not move," close quote.

14 A. Which paragraph?

15 Q. I'm sorry. That's the middle of paragraph 3.
16 Go ahead. Is that statement to your knowledge correct?

17 MS. COMSTOCK: Can you state again which
18 sentence you're looking at?

19 Q. The second sentence in the fourth paragraph.
20 I'm sorry. Third sentence.

21 A. All right. Now, he's talking about when they
22 were operating the acid plant and putting sodium
23 sulfate water into the sewer.

24 Q. But this was correct?

25 A. It happened. I remember it. The water was

1 red and it carried a lot of oil through.

2 Q. Was this incident what gave rise to the
3 creation of the idea of the straw filter?

4 A. Yes, um-hum.

5 Q. The final sentence of this paragraph Mr.
6 Horner talks about installing a straw filter at Maywood
7 which does an excellent job then a detention pond is
8 bypassed. What did he mean by bypassing the detention
9 pond?

10 A. Well he bypassed the detention pond with the
11 sodium sulfate water so as not to mess up the settling,
12 and a straw filter took out any oil in the sulfate
13 water.

14 Q. So he ran a separate line for the sodium
15 sulfate water --

16 A. Um-hum.

17 Q. -- that didn't go through the oil-water
18 separator?

19 A. That's correct, yes. And the oil in that
20 water was taken up by the straw filter.

21 Q. To your knowledge was a separate line run for
22 the sodium sulfate water coming out of the Saint Louis
23 Park plant or did it always go through the oil-water
24 separator?

25 A. Well, he is suggesting here -- we did put the

1 straw filters in at Saint Louis Park. So I would
2 assume that, again I can't say that it was this line or
3 that line, but I would assume that a separate line was
4 put in because his recommendation is to do the same
5 thing at Minneapolis we did in Indianapolis to solve
6 the problem.

7 Q. Well, I don't know. I'm not really sure.
8 The way I understand this letter, and perhaps I'm wrong,
9 you're more aware of the facts than I, is that he's
10 talking about installing a straw filter, but he's not
11 necessarily talking about it as a separate line from
12 the line of effluent that goes through the oil-water
13 separator. I believe your testimony yesterday was that
14 the straw filter was installed immediately following
15 the oil-water separator as the effluent came through.

16 A. Yes. But it could be piped in. At Maywood
17 it was piped in between the settling basin effluent and
18 the straw filter. I'm sure he says -- right here he
19 says, "To eliminate this from the final effluent of the
20 plant we have installed a straw filter which does an
21 excellent job when a detention pond is bypassed." In
22 other words, he's bypassing the detention pond with the
23 sulfate water, liquor, whatever you want to call it.

24 Q. But that was what was done at Maywood, wasn't
25 it?

1 A. Yes. "But then it would be my recommendation
2 therefore to first install a straw filter at
3 Minneapolis and if this straw filter is kept clean it
4 will remove all the oil and give you an acceptable
5 effluent." I agree with you. He doesn't say that he's
6 going to bypass it, but I thought it was understood.
7 If your detention pond is not large enough, an
8 excessive amount of oil has to be handled by the straw
9 filter. The cleaning of the filter might become a
10 major problem, and the straw might have to be
11 replaced as often as once a day. If this is the case
12 it will be necessary to, of course, to replace with a
13 larger detention pond. So I'm convinced that what he
14 did was he was suggesting eliminating the problem at
15 Saint Louis Park in exactly the same manner he
16 eliminated it in Indianapolis.

17 Q. Well, I'm not entirely sure. In the
18 paragraph that you just read do you understand Mr.
19 Horner's concerns to be that the straw might become
20 dirty because of a great amount of oil coming through
21 within a short period of time and have to be changed
22 very frequently?

23 A. My understanding would be that, first of all,
24 the sulfate water should contain very little oil.
25 However, if in the acid extraction plant they didn't

1 get good separation in their settling tank and a lot of
2 oil came through with it, why, this wouldn't work or
3 this would be impractical because the oil in the
4 sulfate water would gum up the straw filter in a hurry.
5 That's the way I understand the letter. That's what it
6 says to me.

7 Q. I'm sorry. The acid extraction tank?

8 A. The sulfate liquor obviously comes from the
9 acid extraction operation. Okay. You want me to
10 explain the process to you?

11 Q. Please. Why don't you explain your
12 understanding of the process.

13 A. It's very simple. In other words, what you
14 do is if you want to take tar acids out of the tar and
15 the water layer, you hit them with caustic soda and you
16 form a sodium salt of the tar acid. Okay? Then after
17 you form the sodium salt of tar acid, you hit the
18 carbolate and that's what that's called, the carbolate,
19 which is a sodium salt of the tar acid. You hit that
20 with strong acids such as sulfuric acid. The sulfuric
21 acids will replace the tar acids, the phenols and the
22 other tar acids that are caught in this carbolate. It
23 will replace them and form sodium sulfate. Okay. Now,
24 sodium sulfate in itself is a salt. It's dissolved in
25 water. Okay. Now, you run this down the sewer to the

1 settling basin. And the problem with this is that the
2 sodium sulfate raises the specific gravity of the water
3 and it effects the settling in the settling basin. So
4 what Mr. Horner is saying is run the sodium sulfate
5 around the settling basin, put it in the sewer between
6 the settling basin and the straw filter, and the straw
7 filter will catch the small amounts of oil that's run
8 out with the sodium sulfate water. Now, if for some
9 reason you get lousy settling or you get poor
10 separation or you get a lot of oil in this sodium
11 sulfate water, then this won't work because the straw
12 will absorb it so fast that it will become impractical
13 and you'll have to change your filters every day.

14 Q. But why then in the paragraph that we've been
15 discussing, which is the sixth paragraph, does he
16 mention the size of the detention pond? If your
17 suggestion is correct and this is dealing with a line
18 that would come into the straw filter without going
19 through the oil-water separator, then the size of the
20 detention pond would be absolutely irrelevant in terms
21 of figuring out exactly -- I'm sorry -- in terms of how
22 much oil would be found on the straw. The only way the
23 size of the detention pond, the way I read it, could
24 make any sense is if he's talking about sulfate water
25 and oil coming first through the detention pond or

1 settling basin before it hits the straw. Am I wrong in
2 that?

3 A. Yes and no. Let me review the whole thing.
4 First of all, Mr. Larkin complained that he was getting
5 a lot of oil through his settling basin. Mr. Horner is
6 writing a letter trying to figure out why he's getting
7 all this oil through his settling basin. One reason
8 could be -- he mentions in Indianapolis the same thing
9 happened and we traced it there to sodium sulfate water
10 going through the settling basin. Okay. Now, if that
11 isn't the case and his settling basin is too small for
12 the amount of oil getting into it then you need a
13 bigger settling basin. I don't see how you could argue
14 with his logic. That's correct. See, he is giving two
15 reasons why oil would go through the settling basin.
16 One would be that he's putting more oil in than the
17 settling basin can take out. That's this paragraph
18 you're talking about now. The other is that he's
19 putting sodium sulfate water through the settling basin
20 and this is upsetting it.

21 Q. Let me ask you this. Does anywhere in this
22 letter Mr. Horner explicitly say the sulfate water at
23 Saint Louis Park and the oil-water separator?

24 A. I haven't read anywhere in here that he says,
25 "Look, put a pipe in from this tank to this point in

1 the effluent." But I think it's logical that if it's a
2 chief engineer speaking to the plant manager, the plant
3 manager --

4 Q. Would have figured it out?

5 A. Would have figured it out pretty easily if
6 you don't want that sodium sulfate to go through the
7 settling basin. He told how he did it at Maywood and
8 he doesn't have to repeat it and tell him to do it at
9 Saint Louis Park. He assumes that Mr. Larkin is an
10 intelligent person I'm sure.

11 Q. When you visited the plant did you ever see a
12 tile or a pile or some kind of influent level, influent
13 device, coming in between the settling basin and the
14 straw filter --

15 A. I cannot --

16 Q. -- injecting water in between those two
17 points?

18 A. I cannot say that I went out there and said,
19 "Oh, that's what that pipe is." No, I did not. I
20 can't say that.

21 Q. You don't recall seeing any pipe?

22 A. I don't recall seeing -- see, I see a lot of
23 pipes. I don't recall seeing any pipe that could have
24 been used for this. That doesn't mean there wasn't any
25 there. But on the other hand, I never saw these

1 letters either. See, I never got copies of any of this
2 So this is all new to me. I'm just trying to read the
3 letter and tell you what I think it says.

4 Q. I understand. Mr. Horner in the paragraph we
5 have been discussing says that if the detention pond is
6 not large enough and excess amount of water has to be
7 handled by the straw filter, the cleaning of straw
8 filter becomes a major problem and straw might have to
9 be replaced as often as once a day. Based on your
10 experience in designing and installing straw filters at
11 various Reilly plants including Saint Louis Park, is
12 that a correct statement?

13 A. Oh, yes. Yes. If you overload the straw
14 filter, you very easily could have to change it once a
15 day.

16 Q. Moving down to the next paragraph Mr. Horner
17 suggests, "In order to determine the size of the straw
18 filter, the engineering department would need flow
19 figures over a 24 hour period and the flow test should
20 be run over a full 7 days a week."

21 A. Good advice.

22 Q. Were these the type of data that you had
23 available when you designed the straw filter for the
24 Saint Louis Park plant?

25 A. Oh, yes. Yes. Indianapolis we got that

1 ourselves and the plants -- I don't know whether the
2 plant engineer did it. I assume the plant engineer
3 would have done this.

4 Q. What is the advantage of having the tests run
5 over a full 7 day week?

6 A. Different operations in the plant at times
7 have maximum amounts of effluent and if you get two of
8 these things that coincide, why, you want to know about
9 it. If you get, say, a seven day sample, I don't think
10 too many people can argue with you that your figures
11 are wrong, you know, that you know how much water is
12 going down the sewer.

13 Q. In the various straw filters that you
14 designed did you generally attempt to get a full 7 day
15 sampling of that?

16 A. I can't recall a seven day, but tried to get
17 a lengthy sample and the straw filters were made extra
18 large. We designed them according to the API
19 instructions and we made them larger than was necessary
20 that we wouldn't have to change them so often.

21 Q. Would flow data for a full 7 day week be
22 equally as useful in designing an oil-water separator
23 itself?

24 A. Yes.

25 Q. I believe at the outset of today's

1 questioning we talked about Saint Louis Park Exhibit 43
2 and there were a couple of flow sheets attached to
3 Saint Louis Park 43, sheets 302831 and 302832, which I
4 believe you said were the flow data that you used in
5 designing the oil and water separator at Saint Louis
6 Park.

7 A. You're talking about these graphs?

8 Q. Right.

9 A. Um-hum.

10 Q. Am I correct in saying that these account for
11 two to four days' worth of flow data?

12 A. Yes. But if you'll remember, we had several
13 letters that we reviewed stating that the design of the
14 Saint Louis Park separator was based on 200 gallons per
15 minute. Of course, we had a one hour retention time
16 and it was based on 200 gallons a minute. And the
17 highest flow I see here there are two peaks at 85
18 gallons a minute. We tried to be conservative. I'm
19 sure that's what it was designed for just based on
20 these letters.

21 Q. Reading on in the final paragraph on the
22 first page of Minnesota 81 which goes over to the
23 second page of Minnesota 81, Mr. Horner says that,
24 "Over the same period of time -- which I believe is a
25 reference to a full 7 day week -- we should have

1 rainfall data from the Weather Bureau so that we can
2 differentiate between process water and runoff water."
3 Do you believe that that was correct advice in terms of
4 determining how to best design a straw filter?

5 A. Yes. We knew the area of the plant. In the
6 first place, it's impossible to keep all rain out of
7 the sewer. You can't do it. The settling basin is
8 open. No top. It can rain in there. It can rain in
9 the sumps at the creosoting cylinder. What we do is
10 get this rainfall data from the Weather Bureau and we
11 calculate how much water the rain is going to put in
12 and then we add that to these graphs, the water shown
13 on the graphs. This is the flows that were shown on
14 those graphs.

15 Q. Would you also be interested in getting
16 rainfall data when you would design an oil-water
17 separator? Would that be as useful as well?

18 A. Yes. It's very useful. In Indianapolis, for
19 instance, the city of Indianapolis you have to
20 negotiate with them with how much rain water can go in
21 or what area. You negotiate over which area the water
22 can fall and enter the sewer. Any water that falls
23 outside that area you're not allowed to put down the
24 sewer, The contaminated water sewer. So we have two
25 sewers there, One going to Eagle Creek and one going

1 to the city sewer system. Our contaminated water goes
2 to the sewer system, sanitary sewer system, and our
3 runoff water goes to Eagle Creek. The state says this
4 is okay and the city says it's okay. Of course, they
5 charge us like hell for what's in there.

6 Q. Did you gather rainfall data in designing the
7 oil-water separator in Saint Louis Park?

8 A. I don't remember doing it, but I'm sure we
9 had rainfall data. We just about had to have. That's
10 how we would arrive at this 200 gallons per minute.

11 Q. Reading two paragraphs down Mr. Horner says
12 that, "We will need the gravity of waste oil at the
13 same time the flow check is made."

14 A. Very important.

15 Q. Collect sufficient samples so you can obtain
16 gravity?

17 A. This is very important.

18 Q. Did you have that data when you designed the
19 straw filter?

20 A. Oh, yes. I had this data when I designed the
21 straw filter and I had it when I designed the settling
22 basin.

23 Q. How do you obtain that data?

24 A. Collect samples and just run gravities on
25 them.

1 Q. Where do they collect samples and what -- in
2 the middle of the flow how is the sample collected?
3 Perhaps is the best way to phrase the question.

4 A. That's a good question. Oils you must worry
5 about are the oils that have the gravity closest to
6 water. So what you do is you collect samples of your
7 light oil and you collect samples of your heavy oil
8 that are the lightest heavy oil. For instance, you can
9 forget about an oil that has a gravity of 1.2. It's
10 going to drop right down like a rock. But an oil
11 that's got a gravity of 1.1, why, you collect that and
12 you settle it in a jar and just check to see how long
13 it takes to settle it.

14 Q. Where do you collect it from? Do you collect
15 it from the effluent pipe as it's coming out? Do you
16 collect it earlier in the process?

17 A. No. I believe we just collect the oil from
18 the tank. It's oil that we're interested in. We're
19 not interested in the effluent. We're interested in
20 the gravity of the oil.

21 Q. I see. I was a little confused. I think you
22 clarified it for me. Reading down to the third
23 paragraph from the bottom Mr. Horner says, "For the
24 installation of the straw filter we would also need the
25 maximum head permitted at the straw filter." What is

1 meant by the phrase "maximum head"? Do you have any
2 understanding?

3 A. When you first put the straw filter in there
4 and straw is cleaned and absorbing oil, there is a drop
5 of maybe, again it's off the top of my head, I'd say
6 one inch across the straw filter. Now, as you start
7 absorbing oil the filter resists flow through. And as
8 it resists flow through it, the level is coming up so
9 that you have a greater area of filter to filter the
10 water. I mean, if the flow stays the same and the
11 straw absorbs oil, why, the level will rise above
12 upstream of the straw filter.

13 Q. In other words, it will work like a dam --

14 A. Yes.

15 Q. -- in a sense?

16 A. That's right. Now what he's saying is that
17 if it gets so bad, if you let it go too long, the water
18 will overflow the banks or overflow the sides of the
19 structure holding the straw filter. In other words,
20 the straw filter as I remember it comes up about 12
21 inches above the structure through which the water
22 flows. So if you don't change the straw soon enough,
23 why, your water upstream of the straw filter's going to
24 overflow. That's what this is saying.

25 Q. Do you have any idea how frequently the straw

1 was changed at the straw filter in Maywood?

2 A. In Maywood? I would say twice a month
3 whether it's needed it or not. I think the plant
4 engineer had a maintenance schedule that he made up.
5 You grease this pump so often. You change the straw
6 filter so often. You did this. Of course he watched
7 it. That's the only way you can maintain a plant.

8 Q. Do you know whether such a maintenance
9 schedule was designed at the Saint Louis Park plant?

10 A. Saint Louis Park had a maintenance schedule,
11 yes, but I'm not familiar with it. I'm sure they had
12 one because you had to have. They all have them.

13 Q. Did these schedules have to be presented to
14 headquarters for approval?

15 A. No.

16 Q. So these would be drawn up by the plant?

17 A. Engineer.

18 Q. On its own information?

19 A. Yes. There would be no point in the
20 engineering getting into how often you grease a pump or
21 oil a bearing.

22 Q. Do you have any personal knowledge about how
23 frequently the straw filter was changed at Saint Louis
24 Park?

25 A. At Saint Louis Park no personal knowledge, no.

1 Q. I'd like you to look for a moment at --

2 MR. SCHWARTZBAUER: Excuse me. I think
3 we ought to quit. It's after 5:00. It's been a long
4 day.

5 MR. HIRD: Can I go briefly for about
6 ten minutes to just complete a couple of mop-up
7 questions really that just relate one more document to
8 what we've been doing?

9 MR. SCHWARTZBAUER: Off the record.

10 (At this time a discussion was held
11 off the record.)

12
13 (At this time the deposition was adjourned
14 and set to be resumed at 9:00 on the
15 12th day of January, 1983.)

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CONTINUED CROSS-EXAMINATION

BY MR. HIRD:

Q. Mr. Hennessy, could you please take a look at Minnesota Exhibit Number 98?

A. All right. Um-hum.

Q. Mr. Hennessy, have you seen this document before?

A. I don't remember ever seeing it before, no.

Q. Mr. Hennessy, does this document appear to you on the basis of your experience in Reilly Tar and Chemical Company to be a Reilly memorandum?

A. Yes.

Q. Entered into by a Reilly employee?

A. Yes.

Q. Do you recall what position Mr. Danz held as of the date of this memorandum on November 29, 1938?

A. I'm going from just hearing people talk, but I'm quite certain Mr. Danz at that time ran the refinery. I think he was in charge of the refinery and the laboratory.

Q. At Saint Louis Park?

A. At Saint Louis Park. I don't know this firsthand, but I believe that's what he was.

Q. Mr. Danz here says that the hot sulfate water of the sort that he found being discharged from the

2
1 byproducts operation at Saint Louis Park, quote, "Has a
2 tendency to loosen the oil and tarry material lining
3 the ditch carrying it along with the flow to the
4 swamp." Do you believe that he is referring there to
5 the drainage ditch at Saint Louis Park that we
6 discussed yesterday?

7 A. It sounds like that to me. That's the way I
8 read it.

9 Q. Would you agree that hot sulfate water would
10 have that tendency that Mr. Danz describes?

11 A. Yes. We discussed that yesterday with
12 sulfate water increases the density of the water.
13 Sodium sulfate increases the density. It would have a
14 greater tendency to lift oils.

15 Q. At the time that you designed the oil-water
16 separator, which I believe was within three years of
17 the date of this memorandum, were you told anything
18 about hot sulfate water coming through the drainage
19 ditch at the Saint Louis Park plant?

20 A. You're talking about 1938 or when I designed
21 it?

22 Q. Let me rephrase.

23 A. Okay.

24 Q. This document says that as of 1938 there had
25 been hot sulfate water going through the drainage ditch

1 A. Um-hum.

2 Q. Within three years of this document you
3 designed, as you testified, the oil-water separator.

4 A. Correct. Yes. Um-hum.

5 Q. At the time that you designed the oil-water
6 separator, did Mr. Horner or anyone else who you were
7 working with on the project inform you that one of the
8 wastes that was coming from the Saint Louis Park plant
9 was sulfate water?

10 A. I can't remember that they did, no.

11 Q. If they had, would you believe that a design
12 of an oil-water separator as you described it to us
13 yesterday and the day before would be effective in
14 removing this hot sulfate water -- or rather, in
15 removing the oil that would be carried along with this
16 hot sulfate water?

17 A. Well, it would be effected in that the proper
18 way to do it is to settle it in the settling tank and
19 get the oil separated from the sulfate water and then
20 bypass the basin with the sulfate water. That would be
21 the way to do it.

22 Q. But not if the sulfate water ran directly
23 into the settling basin?

24 A. No. If the sulfate water runs directly into
25 the settling basin, it will lift some of the heavy oil.

1 MR. HINDERAKER: Excuse me. Can I ask
2 one question? Who was Mr. Courtney, if you know?

3 THE WITNESS: He was a chemist, an
4 analytical chemist, at the Reilly labs in Indianapolis.

5 MR. HINDERAKER: Thank you.

6 THE WITNESS: You're welcome.

7 BY MR. BIRD:

8 Q. Do you know for a fact at the time that the
9 oil-water separator that you designed was actually
10 installed that there was a line which bypassed the
11 oil-water separator with sulfate water?

12 A. When I designed it I do not believe there was
13 a line that bypassed the separator. I can't remember
14 such a line.

15 Q. Mr. Hennessy, were you ever involved with
16 problems at boilers at the Saint Louis Park plant?

17 A. Yes.

18 Q. Could you describe the nature of your
19 involvement, please?

20 A. Well, a man working for me, Mr. Joe Lauck,
21 installed boiler feed pumps, new boiler feed pumps. I
22 believe he also installed the treating system for
23 treating the water to the boiler, but that was the
24 first involvement. Then the second involvement I was
25 directly involved in converting the boiler from coal to

1 oil-gas fired. It was fired by either oil or gas.

2 Q. What was the time of the first involvement
3 that you had with the boilers at Saint Louis Park?

4 A. When Joe Lauck put the equipment in I would
5 say it was in the early '50's. That is a guess. That
6 was about somewhere near right.

7 Q. And the second period when you changed the
8 firing system to use coal?

9 A. Probably about the very early '60's.

10 Q. In both cases were you involved with both
11 boilers at the plant or with only one of the two
12 boilers?

13 A. Well, in the first case of installing the
14 feed water treating and the feed pumps this would be
15 both boilers. In the second case where we converted
16 the boiler from Stoker fired to oil-gas fired it was
17 only the Riley boiler.

18 Q. Was Mr. Lauck a member of your engineering
19 department?

20 A. Yes, he was.

21 Q. How long was he with the company?

22 A. From about 1948 to about, oh, gee, I would
23 guess 1955, about seven years.

24 Q. Have you kept in contact with Mr. Lauck?

25 A. What?

1 Q. Have you kept in contact with Mr. Lauck? Do
2 you know where he is now?

3 A. It's been a couple years since I've seen him.
4 I know where he lives, yes.

5 Q. Where does he live?

6 A. He lives in -- I forget the name of the town.
7 Some small town about two hours south of here, between
8 one hour and two hours south of Indianapolis.

9 Q. Do you know which company Mr. Lauck works for
10 presently?

11 A. I believe he works for the state of Indiana.

12 Q. Could you describe the two boilers at the
13 Saint Louis Park plant in terms of their capacity and
14 their abilities and make a distinction in terms of
15 which boiler was used for what purpose?

16 A. The main boiler was the Riley boiler and it
17 was a water tube boiler. It had a capacity of 20,000
18 pounds of steam per hour. The other boiler was built
19 by Bros Boiler Works in Minneapolis. It was a fire
20 tube boiler. I'm not sure of its capacity, but I would
21 judge it was around 10,000 or 12,000 pounds per hour.
22 This boiler was used as a standby. Every once in
23 awhile you have to take a boiler down, you know, for
24 maintenance and when it was down then the Bros boiler
25 was fired. They always did this at a time when it

2'
1 wouldn't be a maximum demand for steam.

2 Q. What was the steam from the boilers used for?

3 A. For everything. For heating the office. For
4 all processes, heating tanks, for running the injector
5 for pulling vacuums, for whatever steam is used for,
6 you know. There are many uses for steam.

7 Q. What was the source of the water used in the
8 boilers?

9 A. We put city water in about just before Joe
10 Lauck left the company, I believe. It was about 1954
11 or '55 that the -- we can document that. Prior to that
12 the source of water for the boiler was the pond which
13 was the water was replenished by the well.

14 Q. You're referring to the area marked "pond" on
15 Minnesota Exhibit Number 9?

16 A. I'm referring to the pond I would say south
17 of the refinery.

18 Q. On Minnesota Exhibit Number 9?

19 A. On Minnesota Exhibit Number 9, correct.

20 Q. I appreciate that. It's just to keep the
21 transcript clear for people in the future.

22 A. We know what we're talking about but somebody
23 reading it wouldn't.

24 Q. Exactly.

25 A. Okay.

1 Q. What was the nature of your activities in
2 connecting the feed tubes? Was the boiler being newly
3 installed or were new feed tubes being replaced?

4 A. No. I had nothing to do with the
5 installation of the boiler. I think the boiler was
6 installed about -- the Riley boiler was installed about
7 I'm guessing, but I'd say about 1940 or '41. The Bros
8 boiler I believe was prior to that.

9 Q. What exactly were you doing in the early '50'
10 to connect up tubes to the boiler? Perhaps I'm not
11 representing it accurately.

12 A. No. I think you're talking about when I
13 switched it from coal to --

14 Q. No. That was in the '60's, wasn't it, that
15 you switched?

16 A. Oh, the '50's you're talking about. The '50'
17 What did we do?

18 Q. Yeah. Exactly.

19 A. Joe Lauck installed a boiler, new boiler feed
20 pumps. And what else did he do? I believe, I can't
21 remember, but I believe he was involved in putting in a
22 treating system for heating the water and treating it.

23 Q. What was the purpose in the new boiler feed
24 pumps?

25 A. Well, I think the old steam pump, as I

1 remember, was a reciprocating steam pump. They worked
2 all right but a reciprocating steam pump has the same
3 disadvantage as a reciprocating air compressor. You
4 have to put a cylinder in them to keep lubricating them
5 I think the pump was about worn out and cylinder oil
6 was, I believe, getting into the boiler. It wasn't
7 enough to cause any problems because it was such a
8 small amount. But we decided we would go with, I
9 believe, a centrifugal pump, electric.

10 Q. What are the advantages of the centrifugal
11 pump over the reciprocating pump that you used before?

12 A. Well, the centrifugal pump is much easier to
13 control. Your liquid level in the boiler -- all you
14 have to do is throttle a valve and the pump will just
15 pump what the valve lets through. You can run a
16 centrifugal pump at one-fourth, one-half or
17 three-fourths or full load and it won't bother it. A
18 steam pump, reciprocating steam pump, every time the
19 thing makes a stroke it pumps so much water. The only
20 way you can throttle the steam pump is you control the
21 speed of the pump. In other words, you need something
22 to speed the pump up or slow it down. A lot of ways of
23 doing that but that's the general idea. I think that
24 answers your question.

25 Q. I think it does. What was the water

1 treatment program that Mr. Lauck --

2 A. I believe --

3 Q. -- engaged in?

4 A. Here again I've been in so many. We had
5 boilers all over the company. And I didn't think you'd
6 ask me about this so I'm not really prepared. But I
7 believe, if my memory serves me right, that he put in a
8 zeolite softner plus I know he put in a boiler feed
9 water heater.

10 Q. Zeolite softner would have the effect of
11 lowering the mineral content of the water?

12 A. Zeolite softner changes magnesium and calcium
13 salts to sodium salts.

14 Q. Which are easier to work through with boiler
15 water?

16 A. Sodium salts do not scale the boiler.
17 Calcium and magnesium salts form a harder scale in the
18 boiler.

19 Q. What is the effect of the feed water heater?

20 A. You don't want to put cold water in a boiler.
21 So you heat the water before it goes in. And the feed
22 water heater would heat the water to about something
23 like 210 degrees Fahrenheit if I remember correctly.

24 Q. In one case you have a substance and the
25 other sense a piece of equipment, but were they both

1 used with both boilers, the zeolite softner?

2 A. Oh, yes.

3 Q. And the feed water heater?

4 A. Oh, yes. Sure.

5 Q. Why was it considered necessary at that point
6 to soften the water when it hadn't been necessary
7 previously to do so?

8 A. We were really, I think, modernizing the
9 plant. And when the boiler was installed in 1940 I
10 believe they used internal treatment. They actually
11 pumped the chemicals right into the drum of the boiler.
12 It was treated in the boiler. The water was softened
13 in the boiler.

14 Q. But that internal softening process was no
15 longer sufficient?

16 A. Well, it was sufficient but it wasn't as good
17 This was an improvement. I think in the 1940's it was
18 very common to treat it internally in a boiler,
19 especially small boilers like that.

20 Q. At that time did you go to the Saint Louis
21 Park property yourself in connection with Mr. Lauck's
22 work on the boiler?

23 A. Yes. Mr. Lauck was also assisting me in the
24 design of the electrode pitch plant and he did this job
25 That's why I remember about the time it was done

1 because he did this job I believe at the same time we
2 were working on the electrode pitch plant.

3 Q. Do you know about how many trips Mr. Lauck
4 made to the plant in connection with his effort --

5 A. No. I couldn't answer that. I'd be guessing.
6 It would be in connection with what now? Both jobs or
7 just the boiler?

8 Q. Well, in connection with the boiler. He may
9 have been there, may have worked on the boiler
10 incidentally. What he was there for was the electrode
11 pitch?

12 A. I would say for working on the boiler
13 strictly for that job probably, and I'm guessing, I'd
14 say two trips.

15 Q. In connection with the electrode pitch where
16 he might have stopped off and done some work on the
17 boilers.

18 A. Electrode pitch would be probably 6 or seven
19 trips.

20 Q. How about yourself?

21 A. Well, I told you before I think I made ten or
22 eleven trips to the Minneapolis plant during my whole
23 career at Reilly's. They span from '51 or '52 to about
24 '62 I think.

25 Q. So you might have made about two trips in

1 this period to deal with the electrode pitch and the
2 boiler at the same time?

3 A. I never -- I take it back. I did in the
4 early '60's when we were converting from Stoker-fired
5 coal to oil and gas I did make a trip to Minneapolis
6 strictly for the boiler.

7 Q. But you never made a trip during the '50's
8 for the boiler?

9 A. Not for the boiler, no. My trips were always
10 involved with the electrode pitch plant.

11 Q. While you were there involved with the
12 electrode pitch plant would you take a look at the
13 boiler probably?

14 A. Oh, sure. Our department was responsible for
15 it, sure.

16 Q. What was the work done in the '60's in
17 connection with I believe it's just the Riley boiler?
18 Once again that's R-i-l-e-y, correct?

19 A. That's that is correct. The Riley boiler had
20 a Stoker. I forget who made it. Hoffman I believe.
21 Hoffman Spreader Stoker which burned coal. The Stoker
22 was worn out and wasn't performing very satisfactorily
23 at the time. So we decided -- we investigated what we
24 were going to do. We were either going to replace the
25 Stoker and continue to burn coal or we were going to

1 replace it with gas. So after deciding to replace it
2 with gas I went there and did the necessary field work,
3 you know, there is quite a bit involved in that. It
4 sounds real easy but it isn't like connecting a stove
5 at home. You have to have all kinds of regulators and
6 controls and so forth. So we put -- I went there to
7 engineer that, then I came back to Indianapolis and the
8 plans were prepared and the job was done. We hired a
9 contractor. He put it in.

10 Q. Before Mr. Lauck was sent out in the '50's to
11 look at the problem of boiler feed water, had there
12 been any reports to you or to anyone in your
13 engineering office of tar balls or tar flecks getting
14 into the boiler water?

15 A. I don't remember tar balls, no. I just
16 remember the boiler inspector finding scale in the
17 boiler.

18 (At this time United States Deposition
19 Exhibit 5 was marked for identification by
20 the Court Reporter.)

21 BY MR. HIRD:

22 Q. Mr. Hennessy, I've showed you now what has
23 been marked as United States 5 which is a one page
24 document, Reilly date stamp 220436 which appears to be
25 a memo from T. E. Reilly to H. L. Holstrom dated

1 February 2, 1955 and is on Republic Creosoting
2 stationery. I see at the bottom of U. S. 5 that your
3 name appears as someone who's carbon copied. Do you
4 recall receiving this document?

5 A. I'm sure I did, but I wouldn't recall
6 receiving it. I mean, this is a long time ago, 1955.

7 Q. Did you have occasion to review this document
8 within the last year or so before testifying?

9 A. I probably did, but I -- well, as I said
10 before, you know, I helped pull these things out of the
11 file. We pulled out anything we could find that had
12 connection with Saint Louis Park. But I didn't
13 particularly pay much attention to this one because I
14 didn't think that this thing would ever come up. But
15 now that it has -- well go ahead.

16 Q. Was this document, U. S. 5, shown to you by
17 Reilly counsel in preparation for this deposition?

18 A. Well, as I told you before, I had a witness
19 kit, and I wouldn't swear that this was in there or not
20 but it may be. I don't know.

21 Q. What was Mr. T. E. Reilly's position at the
22 time that U. S. 5 was written?

23 A. There again I'm not sure, but Mr. T. E.
24 Reilly might have been president of the company at that
25 time, 1955. He may have been president. If he wasn't

1 president -- I would guess he was president. I don't
2 know. He was high up in the management anyway.

3 Q. Mr. Reilly seems to describe this document as
4 a work order to provide the Saint Louis Park boilers
5 with a connection to the city main to furnish standby
6 boiler water. He the purpose of this connection as to
7 eliminate the use of an open pond which causes
8 contamination to the boiler feed water. What do you
9 understand Mr. Reilly to mean by his use of the phrase,
10 "contamination to the boiler feed water", particularly
11 considering that around this time you were involved in
12 repairs to the feed water system?

13 A. Well, I think the water in the pond to the
14 south of the refinery got dirty with mud and sand and
15 so forth and it was rather difficult to use it for
16 boiler feed water.

17 Q. You don't understand the use of the term
18 contamination to refer to tar or oil in the boiler feed
19 water?

20 A. I really don't remember that, but I don't
21 remember that that was a major problem. Because if it
22 had been a major problem it would really have been
23 major.

24 Q. Why would it have been so major?

25 A. Well, as I explained, you get oil into a

1 boiler and it's going to foam and get water all through
2 your steam lines. If it's a coal tar oil it would --
3 well, even a petroleum oil would even damage, it could
4 damage a boiler. I explained to you how the tubes
5 would get hot and rupture.

6 Q. Suppose the tar had gotten into the boiler
7 feed water -- or oil had gotten into the boiler feed
8 water and the boiler blow down had been connected to
9 the waste drainage system. What kind of materials
10 would that send out through the waste drainage system?

11 A. Well, for a short time before the boiler
12 failed it would send out -- I've got to think about
13 this one. Most of the oil would coke or would probably
14 form scale in the boiler, but if it were, if you could
15 blow it down you'd blow out scale plus you'd blow out
16 any residue of the oil that was left which would be a
17 solid, of course.

18 Q. Mr. Reilly here in U. S. 5 refers to a
19 connection to the city main to furnish standby boiler
20 water service. Was this connection to the city main
21 part of your activities in handling the boiler feed
22 water system back in the mid '50's?

23 A. It was part of my activities with Mr. Lauck
24 doing the work, yes.

25 Q. Mr. Reilly goes on to say that, "The Hartford

30
1 boiler inspector has strongly recommended several times
2 that this change be adopted."

3 A. That's correct. I remember that.

4 Q. Why did the boiler inspector recommend this
5 several times?

6 A. The boiler inspector is hired by the
7 insurance company to protect both the insured and the
8 insurer. He didn't want -- you know, they'll cancel
9 your insurance if you don't keep things up to snuff.
10 He was concerned that we were putting dirty water in
11 the boiler.

12 (At this time United States Deposition
13 Exhibit 6 was marked for identification by
14 the Court Reporter.)

15 BY MR. HIRD:

16 Q. Mr. Hennessy, I've shown you what has been
17 marked United States Exhibit 6 which is a two page
18 memorandum, Reilly Tar date stamp 100800 and 100801
19 which appears to be a memorandum from T. E. Reilly to
20 H. L. Holstrom dated September 9, 1955. I believe
21 there is a notation on it that you were carbon copied.

22 A. That's right.

23 Q. Do you recall receiving this memorandum?

24 A. Well, I know I received it, yes. I can't
25 recall receiving it, but I'm sure I did.

1 Q. Were you shown this memorandum as part of
2 your witness kit, Mr. Hennessy?

3 A. I don't know whether it's in there or not.
4 The thing is about two inches thick. So it probably is
5 in there.

6 Q. Sounds like a lot of reading.

7 A. Well, as many papers as in these books.

8 Q. What was Mr. Holstrom's position at this time?

9 A. Mr. Holstrom was the plant manager at Saint
10 Louis Park.

11 Q. Mr. Reilly here identifies the open pond at
12 Saint Louis Park as having previously been the source
13 of boiler water at that boiler and says that that pond
14 is contaminated.

15 A. That's correct.

16 Q. What do you think Mr. Reilly meant in this
17 memorandum about the contamination in the pond?

18 A. I think he meant that the water was dirty and
19 it was unsuitable for boiler water.

20 Q. How would the water be dirty?

21 A. Well, mostly it had a lot of sand and
22 suspended solids, I'd say sand and mud especially clay
23 mixed in with it.

24 Q. What would you mean by the phrase suspended
25 solids?

1 A. Well, whatever, let me get my time frame
2 right. I don't remember what was to the east of the
3 refinery, but at one time Wheeler was machining wood
4 there, had wood machinery there. It could have washed
5 down sawdust, bark, borings from boring holes and all
6 that type of thing. I don't remember whether it was
7 later at this time. At one time there was a Ready Mix
8 concrete plant there, but I don't know when that was.
9 Or somebody just rented a small piece of ground and put
10 a concrete mixer there. I don't know if this was for
11 one job, but it wasn't there too long, but it was there.
12 It could have been cement and that type of thing,
13 whatever solids would be washed out of the Ready Mix
14 plant.

15 Q. Did you ever hear about tar balls or tar to
16 being in the pond that was used for boiler water at
17 Saint Louis Park?

18 A. I know they were there because we caught them
19 when we put in our pressure tank. So there were what I
20 called oil balls, but they did call them tar balls.

21 Q. In the pond?

22 A. In the pond, yes.

23 Q. When did you put in your pressure tank?

24 A. Let's see. We just had that work order out
25 here a short time ago I thought.

1 Q. Would that be --

2 A. Wait a minute. This is it right here. 1955.
3 Here you go. Sure. This is the letter you just gave
4 me.

5 Q. So --

6 A. That's what it's discussing.

7 Q. So at that time you found tar balls in the
8 pond?

9 A. Correct. Yes. Well, I didn't find them in
10 the pond. You couldn't see any in the pond. But when
11 we put this tank in, we caught tar balls in the tank.

12 Q. What was the purpose of the tank?

13 A. The tank was so that we didn't have to run
14 the pump continuously. It was a pressure tank. What
15 you would do, when the liquid level in the tank got
16 down so far, the pump would come on and raise the
17 liquid level in the tank and then the residual air
18 pressure in the tank which was compressed near the top
19 would force the water out of the tank and up into the
20 condenser coils.

21 Q. So this tank was used for the condenser coils
22 but not used for the boiler?

23 A. That is correct. There was no connection
24 between that tank and the boiler.

25 Q. Which condenser coils are you referring to?

1 A. I'm referring to the condenser coils at the
2 tar refinery for the stills.

3 Q. What do you mean by catching it? Were you
4 able to prevent the problem from recurring?

5 A. By catching it I mean that it was discovered
6 when the controls on this tank which controlled the
7 level at which it and so forth, these controls were
8 gummed up by this oil, oil and sand mixture, you know,
9 just gummed it up so it wouldn't work.

10 Q. So you were able to clean the tank coils?

11 A. We were able to clean them and use them, but
12 it got to be an awful nuisance.

13 Q. Would the controls get dirty again --

14 A. Sure.

15 Q. -- with tar balls?

16 A. Yes. With tar and sand because tar would --
17 tar or oil, whatever it was, would carry the sand and
18 the clay, the mud that was in the pond south of the
19 refinery into the controls and when you got an air jet
20 and things like that it just gums them up right now.
21 These are very small openings, very easy to gum up.

22 Q. Was this tank connected at all to the deep
23 well on the property?

24 A. The deep well pump is what pumped into the
25 tank and what compressed the air above the water, yes.

1 Q. It was also connected to the --

2 A. I'm sorry. I take it back. It wasn't the
3 deep well. The deep well pumped to the pond. There
4 was a tank at the pond which circulated the water
5 through the condenser coils. We used that pump to pump
6 into this tank, this condenser.

7 Q. Let me try and summarize and tell me if I'm
8 wrong.

9 A. All right.

10 Q. The water would originate at the deep well
11 and would be pumped into the pond?

12 A. Correct.

13 Q. Then from the pond into the tank that we have
14 been discussing that had the habit of getting gummed up
15 frequently with tar balls and tar flecks?

16 A. That is correct.

17 Q. Would the source, the immediate source, of
18 the water be the same pond that also fed water into the
19 Riley R-I-L-F-Y boiler?

20 A. Yes. Of course, at that time I believe we
21 had already put the pipe in, hadn't we? But this pond
22 was used from the time the plant -- well, I won't say
23 from the time the plant was built. But since I first
24 knew anything about Saint Louis Park which was, I don't
25 know, in the '40's I guess, the pond was used to feed

1 the boiler from that time up until, say, middle 1955
2 for boiler feed water.

3 Q. In middle 1955 the pond stopped being used
4 for boiler feed water?

5 A. We put city water in.

6 Q. Are you basing your conclusion on this
7 memorandum, United States Number 6, that city water was
8 put in?

9 A. City water was put in. I know that, yes.

10 Q. I'm trying to determine whether your
11 statement that city water was put in around 1955 is
12 based solely on these Exhibits that I have just shown
13 you, U.S. 5 and U.S. 6.

14 A. No. It's not based solely on those Exhibits.
15 I know for a fact that city water was put in, but these
16 Exhibits just give me a feel for the time. If you
17 asked me when was city water put in at Saint Louis Park,
18 I would have said, "I don't know, somewhere in the '50's
19 or '60's. I don't remember." City water was put in.
20 City water was used at the boiler.

21 Q. I see. But you are relying on Exhibits 5 and
22 6, U.S. 5 and 6 for the time --

23 MS. COMSTOCK: I believe he's answered
24 the question.

25 MR. HIRD: No, he has not answered the

1 question.

2 MS. COMSTOCK: Rephrase the question.

3 MR. HIRD: I hadn't finished the
4 question. If I had you would see that it was a
5 different question.

6 MS. COMSTOCK: All right. State your
7 question.

8 BY MR. HIRD:

9 Q. But you are relying on U.S. 5 and U.S. 6 for
10 determining the time --

11 A. The time frame.

12 Q. -- at which --

13 A. Right.

14 Q. -- city water was put into the boiler at
15 Saint Louis Park?

16 A. Um-hum.

17 Q. Mr. Hennessy, I'd like you to take a look now
18 at Minnesota 11, please. At the time Minnesota 11 was
19 written Mr. Horner was chief engineer and your
20 immediate supervisor, is that correct?

21 MS. COMSTOCK: Can we take a moment to
22 look at the document?

23 MR. HIRD: Certainly.

24 (At this time a discussion was held
25 off the record.)

1
2 (At this time United States Deposition
3 Exhibit 7 was marked for identification by
4 the Court Reporter.)

5 BY MR. HIRD:

6 Q. First of all for the record I'd like to
7 clarify that Mr. Hennessy is not looking at Minnesota
8 11, that it was a misdesignation and what I have shown
9 Mr. Hennessy is what will now be designated United
10 States 7, which is a one page document on Reilly Tar
11 stationery, date stamp 217416 and appears to be a
12 memorandum from H. R. Horner to H. L. Holstrom dated
13 May 26, 1954. Mr. Hennessy, do you have any
14 recollection of ever seeing U.S. 7 before?

15 A. There is no copy marked to me, but I'm sure I
16 knew about the job. Now, whether I actually read this
17 letter I don't know, I'm sure at one time I was
18 familiar with this. I was familiar with it I'm sure.

19 Q. Mr. Horner at this time was your supervisor
20 and chief engineer?

21 A. Mr. Horner was chief engineer, correct.

22 Q. This would appear to be a document that he
23 wrote in the course of his duties --

24 A. Yes

25 Q. -- as chief engineer?

1 A. Um-hum.

2 Q. I see that Mr. Lauck is carbon copied on U.S.
3 7. Would you believe that on the basis of reading U.S.
4 7 and the copy to Mr. Lauck that that U.S. 7 was
5 prepared in connection with a job that Mr. Lauck was
6 doing under your direction with regard to the boilers
7 at Saint Louis Park?

8 A. Yes. This was preliminary and they were
9 discussing a job they were going to do, yes. Um-hum.

10 Q. Mr. Horner in the second paragraph of U.S. 7
11 says that one of the reasons that Hartford dropped
12 Reilly's risk on the Ironton boilers a few years ago
13 was due to what he describes as a similar condition to
14 what he's describing in the memorandum. Were you
15 involved at all in the dealings with the Hartford
16 Insurance Company concerning its policy on the Ironton
17 boilers?

18 A. No. Because I think that happened during the
19 water. I think that happened about 1944 or '43.

20 Q. Was Mr. Horner dealing with the Hartford
21 Insurance Company at that time on behalf of Reilly Tar?

22 A. There again I have to answer yes and no. Let
23 me explain myself.

24 Q. Go right ahead.

25 A. Mr. R. J. Doyle was in charge of all

1 insurance for the company. He bought the insurance.
2 He decided who would get it. Now, the man that did the
3 engineering work or in charge of doing the engineering
4 work required for furnishing information to the
5 insurance companies and for any major implementation
6 required, you know, to keep the boilers safe and keep
7 them insurable was the responsibility of Mr. Horner.
8 Mr. Horner and Mr. Doyle worked together on this.

9 Q. Do you know why the Hartford Insurance
10 Company dropped Reilly's risk on the Ironton boilers?

11 A. On the Ironton boilers because we blew them
12 up.

13 Q. How did you blow them up?

14 A. Well, they put contaminated water in. This
15 again is hearsay. I wasn't there. I'd never been to
16 the Ironton plant. But I understand they got
17 contaminated water into the boiler and the tubes got
18 red hot and ruptured.

19 Q. Water contaminated with what went into the
20 Ironton --

21 A. Well, I don't remember what it was
22 contaminated with, but the document you just handed me
23 says it was contaminated with tar and oil.

24 Q. Who would know most about the rupture of the
25 Ironton boilers in Reilly Tar Company?

1 A. Well, since that happened about 40 years ago
2 I suppose about the only man that would remember it
3 would be Mr. Horner.

4 Q. Mr. Horner here says, as you pointed out,
5 that, "The pond at Ironton became contaminated with tar
6 and oil," and then goes on to say that, "We are
7 duplicating that experience." Is your understanding of
8 that phrase that Mr. Horner believes that the pond at
9 Saint Louis Park was contaminated with tar and oil?

10 A. Well, that's what he says. I don't know. I
11 didn't know that it was. He says -- it was in this
12 letter.

13 DR. HINDERAKER: Dave, would you mind if
14 I asked a question for clarification?

15 MR. HIRD: Certainly. Go ahead.

16 MR. HINDERAKER: Mr. Hennessy, do you
17 have any understanding as to how the pond at Ironton
18 became contaminated or the same question what the
19 source of the contamination was at the pond at Ironton?

20 THE WITNESS: I don't understand it. I
21 don't know how it would become contaminated with tar.
22 It could get contaminated with oil if you had a leak in
23 the condenser coil, and you would have some leakage
24 between the condenser coil and the water then the oil
25 would go out with the water into the pond. Now,

1 however, whenever that occurred the water pressure --
2 see, the pressure on the still is about 6 pounds and
3 the pressure on the water was something like 40 pounds.
4 So your leakage would be into the coil. I'm not saying
5 there wouldn't be any leakage the other way. But they
6 would have to shut down the still immediately because
7 they're filling their product tank with water. But
8 that's how -- you asked a question how it could become
9 contaminated with tar and oil. I've answered the
10 question how it could become contaminated with coal
11 tar oil. I don't know how it could become contaminated
12 with tar. As far as petroleum oil is concerned, I
13 believe for years they used a steam pump to pump the
14 water through the condenser coils. Of course, steam
15 pumps require a cylinder lubrication. That's the only
16 source of contamination I can think of.

17 MR. HINDERAKER: Those are the
18 theoretical possibilities?

19 THE WITNESS: Theoretical possibilities.

20 MR. HINDERAKER: Did you have occasion
21 to investigate the Ironton situation?

22 THE WITNESS: No. As I say, I was just
23 a young employee 40 years ago. It was investigated by
24 people, other people, not me.

25 MR. HINDERAKER: Thank you.

1 MR. COYNE: May I ask a follow-up
2 question? Mr. Hennessy, what was the source of water
3 at the Ironton facility?

4 THE WITNESS: Source of water at the
5 Ironton facility was a creek. And what's it called?
6 Sugar Creek.

7 MR. COYNE: So that surface water from
8 the creek was a source of water supply for the Ironton
9 facility?

10 THE WITNESS: Yes.

11 MR. COYNE: There was no ground water
12 that was a source of water supply at the Ironton
13 facility?

14 THE WITNESS: Now, I don't know if they
15 had any wells. I can't answer that question yes or no
16 because I don't know.

17 MR. COYNE: But as far as you do know,
18 the surface water was the major source of water supply
19 at the Ironton facility?

20 THE WITNESS: I wasn't involved at
21 Ironton until very much later. But when I was involved
22 with the Ironton plant, I'm sure that their water was
23 from the creek. The only city water they had going in
24 there was for drinking water and sanitation purposes.

25 MR. COYNE: When did you first become

1 involved with the Ironton facility then?

2 THE WITNESS: Well the first trip I made
3 to Ironton was when? I have to stop and think. I
4 would say it was in the '70's.

5 MR. COYNE: Okay.

6 THE WITNESS: I take it back. Make it
7 the '60's. I forgot about one trip. Yeah. Late '60's.

8 BY MR. HIRD:

9 Q. Mr. Hennessy, reading down U.S. 7 to the next
10 paragraph Mr. Horner says, "I would judge that the best
11 source of supply for boiler feed would be city water as
12 recommended by Mr. Holm." Who was Mr. Holm?

13 A. Again I'm guessing, but from reading the
14 letter I assume that Mr. Holm was the boiler inspector
15 or the negotiator for the insurance company.

16 Q. Did you have any dealings with Mr. Holm?

17 A. I did not know Mr. Holm.

18 Q. Mr. Horner here recommends a connection to
19 city water but says that the city may not grant
20 permission for that connection in which case Mr. Horner
21 I believe says, "My second recommendation would be to
22 pump from the well into a tank." Do you have any sense
23 of what type of operation Mr. Horner is recommending
24 here about pumping from the well into a tank and how
25 that procedure would work?

1 A. Well, what you would do is you would pump the
2 water from the well into the tank and settle out the
3 sand and take the water off the top of the tank or off
4 the middle of the tank and put it in the boiler. I
5 would assume that's what he's talking about, but I
6 don't know.

7 Q. Do you know whether this was ever done?

8 A. No. It was never done. We hooked to city
9 water.

10 Q. Could I ask you to turn in the Exhibit book
11 to Minnesota Exhibit 18, please? Mr. Hennessy, do you
12 recall ever having seen Minnesota Exhibit Number 18
13 before?

14 A. I'm sure I saw it, yes. I don't remember it,
15 but I'm sure I did.

16 Q. Do you believe that when you saw it it was
17 around the time when it was written or recently?

18 A. Yes. In '54. 29 years ago, something like
19 that.

20 Q. Minnesota Exhibit 18 appears to be an
21 inspection report from Mr. Lauck to Mr. Horner. Based
22 on your recollection that Mr. Lauck was at the Saint
23 Louis Park plant doing work for you at that time period,
24 was he conducting this inspection under your auspices
25 as well as Mr. Horner's?

1 A. On the inspection -- he had a little bit
2 different job in the engineering department. He was in
3 charge of inspecting plants and reporting back to Mr.
4 Horner. However, I did know about his activities and
5 the engineering part of his activities I was overseeing
6 those. But his inspections I did not.

7 Q. So to the extent that his inspections
8 involved reports on the condition of equipment or
9 processes which were in the jurisdiction of the
10 engineering department, you'd be aware of his reports?

11 A. Yes. I also made judgments on some of his
12 recommendations, you know, Mr. Horner would ask me for
13 my opinion.

14 Q. In the opening paragraph on the first page of
15 Minnesota Exhibit 18 Mr. Lauck appears to be describing
16 the operation of the water feed system into the Riley
17 boiler. He says that at that time, quote, "Water is
18 taken from a 12 inch well by an air lift, collected in
19 an open pan about three feet by four feet by 6 feet and
20 run into an open pond." To your recollection is that
21 correct?

22 A. Yes. That is correct.

23 Q. Then he goes on to say, "a steam
24 reciprocating pump is used to supply a four inch
25 screwed main water from the pond." Does that agree

1 with your recollection?

2 A. Yes.

3 Q. Lastly he says that, "This main runs through
4 the plant serving one plant washroom, the refinery, the
5 office washroom, and the boiler house." Does that also
6 agree with your recollection?

7 A. Yes. That's correct. Okay.

8 Q. Mr. Lauck says that the pond usually has an
9 oil slick and the water is not clear. Do you believe
10 here that he's referring to the pond on the property
11 which fed water into the boiler system?

12 A. He's referring to the pond that is south of
13 the refinery, and that oil slick would be the light
14 iridescent oil floating on the surface of the pond.

15 Q. This would be the pond from which water was
16 taken into the boiler system?

17 A. Right.

18 Q. Did you observe that oil slick on the pond at
19 your visits to the property?

20 A. I don't remember the oil slick, no.

21 Q. Do you remember the pond being clear on your
22 visits to the property?

23 A. No. It was muddy.

24 Q. Mr. Lauck goes on to say that, "A sample of
25 water was taken from the office wash basin and that

1 sample contained solid material both lighter and
2 heavier than water." Were you familiar with that
3 sampling?

4 A. I have completely forgotten about it, but I
5 assume this is what he did, yes.

6 Q. Do you remember any comments about water in
7 the office wash room containing solid material?

8 A. Well, I washed my hands in that wash basin
9 many times. I don't remember any solid material coming
10 out, but he says it did. Of course, I don't know.

11 Q. If water in the office wash basin pumped out
12 of the pond contained solid material, what would that
13 tell you about the condition of the water that would be
14 pumped out of the same pond into the boiler system?

15 A. It would contain solid material.

16 Q. If you could turn your attention to the top
17 of the second page of Minnesota Exhibit 18, Mr. Lauck
18 says that, "The air lift -- and I believe he means the
19 air lift pump -- might be blamed for the corrosion on
20 the four inch screwed water line through the plant."
21 How could the air lift pump be responsible for the
22 corrosion of the water line that extended through the
23 plant?

24 A. When you lift water from a well with an air
25 lift, the water contains a maximum of dissolved oxygen

1 plus it contains air bubbles. Air and water will
2 corrode cast iron after awhile, very slowly, but it
3 will corrode it, especially water containing a maximum
4 of oxygen.

5 Q. If the water main was corroded and leaks
6 occurred through it, where would the water or substance
7 that leaked through the water main ultimately wind up
8 going?

9 A. The water would leak out of the pipe and the
10 pressure would form a wet spot on top of the pipe and
11 it would dig down and repair it.

12 Q. The water wouldn't move along the trenches
13 independently of the pipe?

14 A. I don't believe this pipe was in a trench,
15 was it? I believe it was buried. Let's see. I
16 believe he says something in here about -- I don't know.
17 I was under the impression this water line was buried
18 and I believe this is it right here. I believe this is
19 the pump here.

20 Q. Where it says "firehouse"?

21 A. That's where your steam pump was.

22 Q. So you think the water line is the dotted
23 line that goes from firehouse --

24 A. These are fire hydrants, see.

25 Q. I see.

1 A. So this is your -- this is the line he's
2 talking about.

3 Q. So your understanding of the water line he's
4 talking about is the water line that goes from the
5 designation firehouse on Minnesota Exhibit 9?

6 A. Correct.

7 Q. And continues on up after making a sort of
8 dogleg until it hits underground creosote oil tank yard?

9 A. Where's our -- yes. Where's our boiler room
10 here?

11 Q. Boiler room is over here in the left.

12 A. What is this line here? I don't know.

13 MR. COYNE: Off the record.

14 (At this time a discussion was held
15 off the record.)

16 BY MR. HIRD:

17 Q. Mr. Hennessy, off the record you by examining
18 Minnesota 9 determined that the water main was the
19 dotted line that went from the point designated
20 firehouse up past the underground creosote oil tank
21 area and, although it doesn't show it, continues on to
22 the area designated boiler room?

23 A. Well, Joe Lauck's letter says it was
24 connected to the boiler room. So evidently it did go
25 up that far. This drawing doesn't show it. When

1 you're covering a period of 42 years, you know, the
2 plant maps change.

3 Q. I understand. I really appreciate your
4 bearing with us on this. You have to remember you were
5 there and we weren't.

6 A. Yes. Okay. All right.

7 Q. So even your 40 year old knowledge is better
8 than our nonexistent knowledge. In the middle of page
9 3, Minnesota 18, Mr. Lauck refers to cracks in the
10 refractory brick of the boiler and many sections of
11 brick having fallen out of the refractory area. Is
12 that consistent with your observations of the boiler at
13 this time?

14 A. I never crawled in that boiler and looked at
15 it to be honest about it. I never inspected the boiler.

16 Q. At the bottom of the page 3 of Minnesota 18
17 Mr. Lauck has a recommendation that a new plant water
18 main be installed from the well to the boiler. Would
19 that new water main as he described it bypass the use
20 of the pond and just simply send well water directly to
21 the boiler?

22 A. That's what I read in the letter, install a
23 new plant water main from the well to the boiler.
24 That's his recommendation. To the boiler house with
25 additional connections as is present. Yes. That's

1 what the letter says. Bypass the pond.

2 Q. That would take care of the corroded water
3 main that he mentioned earlier in the document?

4 A. Yes. Right.

5 Q. Do you know whether a new water main was
6 installed to run that distance at any time?

7 A. Not the main he's recommending. The main I
8 remember being installed was connected to city water.

9 Q. If as Mr. Lauck suggests, and I believe Mr.
10 Horner earlier suggested in U.S. 7, that tar and oil
11 was coming out from the pond into the boiler, would it
12 also go through this water main that Mr. Lauck
13 describes as being corroded?

14 A. Where is this you're reading?

15 Q. I'm sorry. Perhaps I should rephrase.

16 A. Oh, you're back on page 17

17 Q. Yeah.

18 A. Okay.

19 Q. Actually, what I'm going back to is referring
20 you to U.S. 7 again. If you recall in U.S. 7 when we
21 were discussing U.S. 7 I believe you testified that on
22 the basis of this document it was your understanding
23 that Mr. Horner thought the tar and oil was coming from
24 the pond into the boiler system. If that is correct,
25 would that same tar and oil get from the pond into the

1 water main which Mr. Lauck describes in Minnesota 18 as
2 being corroded?

3 A. Let me see if I understand your question.

4 Q. Certainly.

5 A. Your question is if we quit using the pump at
6 the pond and put an electric pump in the well and then
7 hooked directly, is that your question?

8 Q. No. Let me try and rephrase. As I
9 understand it, we looked at U.S. Number 7 and Mr.
10 Horner there, as you read it, suggested that tar and
11 oil was getting into the Riley boiler --

12 A. Um-hum.

13 Q. -- at Saint Louis Park.

14 A. What's the question?

15 Q. If the source of that tar and oil that was
16 getting into the Rully boiler was the water used from
17 the settling pond, describing settling pond water used
18 from the pond?

19 A. Cooling pond.

20 Q. Cooling pond. Would that same water also go
21 through these mains that Mr. Lauck is describing in
22 Minnesota 18?

23 A. No. Because the way I understand what Mr.
24 Lauck's recommendation is is to put in a new pump in
25 the well and hook it directly to the main and pump it

1 to the boiler so that the water in the pond would no
2 longer go through the pipe.

3 Q. Mr. Lauck refers earlier, however, to
4 existing mains on the top of page 2 which are corroded.

5 A. Yes.

6 Q. So at that time water from the pond, the
7 cooling pond, was being pumped through those existing
8 mains?

9 A. That's right.

10 Q. If there was oil and tar in the cooling pond,
11 would that oil and tar be pumped along with the water
12 into the existing mains --

13 A. Yes, it would.

14 Q. -- that Mr. Lauck was describing?

15 A. Are you talking about Mr. Lauck's
16 recommendation?

17 Q. No. I'm talking about Mr. Lauck's discussion
18 on the top of page 2 of Minnesota 18 about the existing
19 water line, the first line on page 2 which we discussed
20 earlier.

21 A. If there were tar and oil in the pond, it
22 would be pumped through this line, correct. Yes.

23 Q. Which Mr. Lauck describes as corroded?

24 A. That's right. Yes. Um-hum. Sorry. I
25 didn't understand your question.

1 Q. I think it was my fault. I didn't phrase it
2 as succinctly as I might. If you'll turn to page 5 of
3 Minnesota Exhibit 18 Mr. Lauck under the heading Roman
4 II is describing condensers and pans in the refinery
5 and the vapor system outside of the building and states
6 that these condensers and pans were badly deteriorated.
7 Does this statement agree with your observations at the
8 time?

9 A. Well, this was before I believe we ever got
10 involved in the electrode pitch plant because what he's
11 talking about here is the condenser coils were badly
12 deteriorated and the only way you can really fix them
13 is to pull the coil out and either put a new one in or
14 take it apart outside and fix it. Now, what he says
15 the plant did was they cut links out. In other words,
16 if a piece of pipe in the coil started leaking, they
17 cut the piece of pipe out and just eliminated -- what
18 they did is they essentially made a smaller condenser
19 out of it. He says as a result too hot and excessive
20 vapors accumulate.

21 Q. Do you have any reason to doubt the accuracy
22 of that statement?

23 A. I have no reason to doubt the accuracy of the
24 statement because Mr. Lauck was pretty accurate. On
25 the other hand, when we were involved with the

1 electrode pitch we had new coils in there. But that's
2 besides the point. Um-hum. So I don't remember these
3 coils.

4 Q. You never observed --

5 A. No.

6 Q. -- the condensers and the pans which Mr.

7 Lauck is describing here?

8 A. No.

9 Q. But you have no reason to disagree with his
10 assessment --

11 A. No.

12 Q. -- that they were badly deteriorated?

13 A. No. I couldn't argue with it at all. I
14 can't disagree with it.

15 Q. You have no reason to believe it is not
16 accurate in saying that the condenser pipes were
17 shortened as bad pieces of pipe were taken out?

18 A. Yes.

19 Q. As opposed to new segments being installed?

20 A. Um-hum.

21 Q. Do you recognize the handwriting on the last
22 page of Minnesota 187

23 A. I don't recognize the handwriting, but I
24 recognize the initial under the handwriting.

25 Q. Which is what?

1 A. F. J. Mootz. F.J.N.

2 Q. Is the handwriting in the upper corner of
3 page 7 the same as the handwriting in the bottom of
4 page 7 of Minnesota 187.

5 A. It looks the same. I'm no handwriting expert,
6 but it looks the same. I would guess it was.

7 Q. On page 7 under Roman numeral IV on Minnesota
8 18 Mr. Lauck refers to the steam main running through
9 the tank farm consisting of a two inch uninsulated pipe
10 running in the trenches that is partly submerged in
11 water. He recommends that an overhead insulated line
12 will reduce the boiler load considerably. What does he
13 mean by that?

14 A. I have to go back into history. In the early
15 '20's when the refinery was built the way tar refineries
16 were built, they ran their creosote oil and tar lines
17 in trenches underground but you could take the top of
18 the trench off and get to them. They ran the steam
19 line through the same trench uninsulated. What this
20 did, this kept the tar and oil lines hot so in the
21 winter time especially in a cold climate you could pump
22 through them without too much problem. That's what
23 he's talking about. He's talking about the steam line
24 and the oil and tar lines run through a trench.

25 MR. HIRD: Off the record.

1 (At this time a discussion was held
2 off the record.)

3
4 (At this time a recess was held.)

5 BY MR. HIRD:

6 Q. Just before the break, Mr. Hennessy, you
7 identified the handwriting on page 7 of Minnesota 18 as
8 Mr. Mootz' handwriting.

9 A. Doctor Mootz.

10 Q. Doctor Mootz?

11 A. Um-hum.

12 Q. To your knowledge did Doctor Mootz frequently
13 visit the Saint Louis Park plant?

14 A. No. I don't know.

15 Q. You don't know one way or the other?

16 A. No.

17 Q. The handwriting on the bottom of the page
18 indicates that -- well, states that, "After hard rains
19 the water in the yard and refinery building stands
20 several inches deep." Would this indicate to you that
21 Doctor Mootz had visited the plant and observed this
22 situation?

23 A. That would indicate that he has seen it I
24 would think.

25 Q. Do you recall seeing water standing in the

1 yard several inches deep and standing around the
2 refinery building several --

3 A. There is a lot more than several inches deep.
4 I've seen it clear up to the hubcaps on the cars west
5 of the refinery building.

6 Q. When do you recall seeing water that high?

7 A. Late '50's I'd say.

8 Q. Do you know the specific date that the city
9 of Saint Louis Park built the extension to the
10 Louisiana Avenue?

11 A. No, I don't. It's been too long ago. I
12 can't remember. I was involved. I should remember the
13 date. Probably a few years later I would have
14 remembered. We had to calculate the area that we sold
15 them. We sold them the property or had -- we moved our
16 property line. We sold them some property. I know of
17 somewhere in the time frame it was in the late '50's
18 because I was involved or middle '50's. I don't know.
19 Somewhere around in there.

20 Q. Would it be before the date of Minnesota
21 Exhibit 18, 1954?

22 A. It could possibly have been. I don't know.
23 Al can tell you more about that than I could.

24 Q. In the upper right hand corner of page 7 of
25 Minnesota 18 Doctor Mootz whose handwriting you

1 identified, "suggests to J.L." -- which is who?

2 A. Joe Lauck.

3 Q. Joe Lauck. That, "It may be more economical
4 and yet serve the purpose to insulate the lines which
5 we will do anyway." Do you understand what this
6 disagreement with Mr. Lauck's recommendation by Doctor
7 Mootz was about?

8 A. Read it again. "Suggests to J.L. that it may
9 be more economical and yet serve the purpose to
10 insulate the lines which we will do anyway and put in a
11 sump pump at the end of the trench system to keep
12 trenches dry. This also will -- I don't know that word
13 water out of the yard."

14 Q. I think it's "keep".

15 A. Doctor Mootz was not an engineer. If you
16 understood the situation the suggestion isn't very good.

17 Q. Why isn't that suggestion very good?

18 A. Quantity of water was enormous. You'd never
19 be able to keep it dry.

20 MS. COMSTOCK: On the record for
21 clarification perhaps we will let --

22 Q. If you have something more to say, Mr.
23 Hennessy --

24 MS. COMSTOCK: About the handwriting you
25 want to clarify what we were discussing off the record?

1 A. Well, I could not identify the handwriting
2 and I still can't, but I recognize the initials.

3 Q. But you saw no difference between the
4 handwriting at the bottom and the --

5 A. They look like the same handwriting to me,
6 yes.

7 Q. Thank you.

8 (At this time United States Deposition
9 Exhibit 8 was marked for identification by
10 the Court Reporter.)

11 BY MR. HIRD:

12 Q. Mr. Hennessy, I've shown you what has been
13 marked U.S. Exhibit 8, which is a 6 page document
14 extending from date stamp number 304409 through date
15 stamp number 304414, which appears to be a memorandum
16 from J. A. Lauck to H. R. Horner dated October 12, 1954.
17 Mr. Hennessy, have you ever seen United States Exhibit
18 8 before?

19 A. I probably have. I can't swear to it, but I
20 think I did.

21 Q. Do you believe that you saw it at the time
22 close to the time when it was written?

23 A. Yes.

24 Q. Have you seen it at all sense then up until
25 today?

1 A. I wouldn't know. If this was in my witness
2 kit I saw it. But if it wasn't I didn't see it. I
3 don't know.

4 Q. Would this have been the inspection report
5 that Mr. Lauck would have submitted in the course of
6 his duties as a plant inspector after his visit to
7 Saint Louis Park?

8 A. Yes, um-hum.

9 Q. Would you have been likely to have received a
10 copy of United States P since it reports on equipment
11 at the Saint Louis Park plant?

12 A. Well, at the time it was written I obviously
13 did not receive a copy because he's got copies marked
14 for T. E. Reilly, F. J. Mootz and H. L. Holstrom.

15 Q. But you would anticipate you would ultimately
16 see a copy because of the subject matter of this report?

17 A. Yes. That's correct.

18 Q. Would you turn to the page that is date stamp
19 number 304411?

20 A. All right.

21 Q. Under the heading at the bottom of the page
22 which begins Arabic "2. Water" Mr. Lauck states that,
23 "Plant water is furnished by the 12 inch well which
24 discharges into a pond by an air lift from which it is
25 pumped into the plant four inch water main." Do you

1 believe he is referring there to the system of the well
2 to the cooling pond to the water main that we had been
3 previously discussing this morning at Saint Louis Park?

4 A. Yes, he is. The water was lifted out of the
5 well by air, put into the pond and then the steam pump
6 or reciprocating pump at the firehouse then pumps it
7 through the main, four inch water main.

8 Q. Mr. Lauck goes on to say, "This main contains
9 approximately 32 small wooden plugs and possibly
10 accounts for several wet areas around the plant." Did
11 you have any knowledge of the wooden plugs in this
12 water main at Saint Louis Park plant?

13 A. I probably did. This is a standard method of
14 stopping a hole in a cast iron pipe. There is this
15 cast iron. Wait a minute. It must have been cast iron.
16 All right.

17 Q. He then goes on to say, "The water is
18 contaminated by oil and mud from the pond and has a
19 disagreeable odor." Do you understand him as
20 referring there to the water that is moving through the
21 main --

22 A. Yes.

23 Q. -- to the plant?

24 A. Yes.

25 Q. Do you have any reason to believe that

1 statement is inaccurate?

2 A. No. Because I know the pond when I saw it
3 was murky with mud and silt.

4 Q. Could you turn now to page date stamp number
5 304413 on U.S. Exhibit 8.

6 A. All right.

7 Q. Under the heading marked Arabic "5. Waste."

8 Q. Mr. Lauck here identifies 7 sources of waste
9 at that time. Do you have any reason to disagree with
10 any of those 7 sources as a source of waste or to
11 discount any of those sources as a source of waste at
12 the time?

13 A. Okay. We have surface water, tank farm
14 trench water, steam condensate. Then he's got oil and
15 tar spillage, water from oil, water cut in refinery,
16 cooling water from refinery and air compressors,
17 laboratory sink, boiler blow down, water from tank 5 at
18 the treating plant.

19 Q. Do you have any reason to --

20 A. I understand everything except the tar
21 spillage. But I don't know where that would come from.

22 Q. When he's talking about tank farm trench
23 water, is he talking about trenches that run down to
24 the oil-water separator which you designed?

25 A. He's talking about the trenches that contain

1 the oil lines and tar lines and the steam line that was
2 built about 19 -- early '20's.

3 Q. The water that he describes -- well, let's go
4 through that item bit by bit then. He mentions a tank
5 farm trench water. Would you understand that to be
6 water that leaked from those pipes and lines that ran
7 through those trenches?

8 A. The tank farm trench would be the trench
9 containing the pipes connected to the tank farm and the
10 water would be the surface water which ran into the
11 trenches from above.

12 Q. Would that surface water ultimately run down
13 through the oil and water separator?

14 A. Well, it would run to a sump and from the
15 sump it would be pumped to the oil-water separator, yes.

16 Q. Would steam condensate also get into those
17 trenches?

18 A. Yes. The tanks had steam coils in them and
19 there was no condensate return system on those boilers.
20 So the steam that was condensed in the steam coils
21 would then be discharged. I don't know whether they
22 were discharged into the trench or not, but they would
23 eventually end up in the trench if there was enough of
24 it.

25 Q. Okay. You said you were puzzled by oil and

1 tar spillage being something in the trench. Why are
2 you puzzled by that?

3 A. The tar came in by rail car. They came into
4 that tar vat. That was built in such a way that what
5 you did is you put a metal hose, I believe, on the
6 bottom of the tank car and put the other end of the
7 hose into the vat. You opened the valve. Now, in case
8 something went wrong, say you broke the valve clear off
9 the bottom of the car and the whole tank car spilled
10 out, which I don't know that it ever did, I never heard
11 of it happening, but say it did, it would still run
12 into that vat. In other words, the entrance to the vat
13 was lower than the track.

14 Q. Were there oil and tar lines running through
15 these trenches that Mr. Lauck is describing?

16 A. Out in the yard, yes.

17 Q. So could he be referring to spillage caused
18 by leaks in those lines?

19 A. He could. I guess, yes, he could.

20 Q. If you go down a little further Mr. Lauck
21 refers to a wooden settling basin 10 feet by 16 feet by
22 50 feet. Do you believe there he is referring to the
23 wooden settling basin which you designed?

24 A. I imagine he is because that's the only basin
25 I can think of that was that large. 50 feet. That's

1 pretty good size.

2 Q. Would those dimension figures refresh your
3 recollection as to the specific dimensions of the
4 settling basin which you designed?

5 A. I would say that if he says it was 10 by 16
6 by 50 that would be the settling basin I designed. In
7 other words, 16 feet wide, 50 feet long and 10 feet
8 deep.

9 Q. About how many feet above the surface would
10 the settling basin be?

11 A. I'm going by memory. But I think the top of
12 the basin was about one foot above the surface of the
13 ground.

14 MR. COYNE: Mr. Hennessy, I have a
15 question to clarify the record. You referred to a tar
16 vat a few moments ago. I believe that the tar vat that
17 you referred to is what we have designated as a tar
18 cistern on the map. If you could just confirm that for
19 us.

20 THE WITNESS: You are correct. It is
21 the tar cistern on the map.

22 MR. HINDERAKER: Thank you.

23 MR. HIRD: Thank you for the
24 clarification.

25 THE WITNESS: Got to start using the

1 same terminology here.

2 (At this time United States Deposition
3 Exhibit 9 was marked for identification by
4 the Court Reporter.)

5 BY MR. HIRD:

6 Q. Mr. Hennessy, I've shown you a document which
7 has been marked United States Exhibit 9 which is a two
8 page document containing date stamp number pages 100894
9 and 100895. It appears to be a November 23, 1954
10 memorandum from J. A. Lauck to H. A. Horner. Do you
11 recall ever seeing U.S. 9 before, Mr. Hennessy?

12 A. I don't recall it, but I'm sure I've seen it.

13 Q. You're sure you saw it at the time when --

14 A. In fact in 1954, yes.

15 Q. This United States 9 appears to you to be a
16 document written by Mr. Lauck in connection with his
17 investigation of the Saint Louis Park plant about that
18 time?

19 A. That's correct. Um-hum, that's correct.

20 Q. Can I turn your attention to the second page
21 of U.S. 9, item 13, where Mr. Lauck discusses a
22 maintenance program to be started next year patterned
23 after the maintenance program at Maywood. Do you have
24 any understanding what the maintenance program in
25 Maywood was?

1 A. I was not involved in that, but I do
2 understand generally what it was. They kept a record
3 of each piece of equipment in the plant and they had
4 code numbers which told them which preventative
5 maintenance had to be done. And the megger is an
6 electrical piece of equipment where you check electric
7 wiring and electric motors for quality of insulation.

8 Q. Do you have any personal knowledge whether
9 such a maintenance program was ever instituted at Saint
10 Louis Park?

11 A. Yes, it was instituted.

12 Q. Why do you say that?

13 A. Yes, it was?

14 Q. Why? What's the basis of your understanding
15 it was instituted?

16 A. I can remember Joe Lauck's discussion with
17 Mr. Peters, and I can just remember hearing him talk
18 over the phone to plant personnel and discussing the
19 maintenance procedure.

20 Q. Do you remember whether he was talking about
21 instituting a program at that time or was talking about
22 a maintenance program that was already in existence
23 when he was on the phone?

24 A. From reading this letter I gather that the
25 Maywood system was being set up at the time this letter

1 was written and that he is recommending they install
2 the same maintenance system at Saint Louis Park.

3 Q. But when you heard Mr. Lauck talking on the
4 phone with -- I believe you mentioned a Mr. Peters?

5 A. I believe Mr. Peters.

6 Q. Was Mr. Peters at Saint Louis Park?

7 A. Mr. Peters was at Saint Louis Park, yes.

8 Q. Was Mr. Lauck talking with Mr. Peters about
9 what is to be done in terms of substituting a
10 maintenance program or was he talking with Mr. Peters
11 about an already existing maintenance program or do you
12 have no recollection?

13 A. I can't recall that well.

14 Q. What was Mr. Peters' position at Saint Louis
15 Park at that time?

16 A. I believe he was plant engineer, but I'm not
17 sure. I believe he was.

18 Q. Do you remember his first name?

19 A. No. I knew him but I can't recall his first
20 name.

21 Q. Do you have any idea of what he did when he
22 left Reilly Tar?

23 A. I think he retired, but I'm not sure.

24 Q. Do you have any recollection of how old a man
25 Mr. Peters was in 1954?

1 A. He was older than I was. Of course, I wasn't
2 all that old in '54, but he was older than I was.

3 Q. Okay. Thank you. I'm going to ask you to go
4 down Mr. Lauck's 13 recommendations and ask you whether
5 you have any personal knowledge which of these 13
6 recommendations were actually put into effect.

7 A. The 13 recommendations. City water
8 connection to boilers. That was done. Conversion to
9 gas. That was done. Low water cutoff on Riley boiler.
10 That was done. You have to do that if you're going to
11 burn oil and gas.

12 Q. That was done when you converted in about
13 1962, it wasn't done around 1954?

14 A. No. No. It was done in '54 because he says,
15 "To be installed at the time new burners are
16 installed." I may be wrong. Maybe it was done then.
17 Because we did get into boiler controls then. I'm not
18 sure about the date '62. That was a guess. I don't
19 know. Okay. Feed water regulator on Riley boiler.
20 Evidently it had already been purchased and was going
21 to be installed during the regular shut down. So that
22 was done. Flame failure protection. That was done
23 when we burned oil and gas.

24 Q. That was when you converted in the early '60'?

25 A. To the best of my recollection. I don't know

1 what the date was. I said early '60's. I was trying
2 to remember. But the reason I say it was -- why I
3 guessed it was early '60's is one of my later visits to
4 Minneapolis.

5 Q. So it would probably be later than 1954?

6 A. Oh, yeah, it was definitely later than '54
7 because they were burning coal in '54.

8 Q. Which is the date of U.S. 9?

9 A. The letter, right. Now, flame failure
10 protection on Riley boiler. High voltage wiring in
11 trees. Well, he said should be cleared. I don't
12 remember anything about the high voltage wiring in
13 trees. This is something a man at the plant would see.
14 I don't know what he did, whether he trimmed the tree
15 or what. Obviously something was done. Feed water
16 heater to be raised and a proper exhaust header and air
17 bleed installed next spring during regular shutdown.
18 Now, why they had to raise the feed water heater is if
19 you put in a centrifugal pump, the centrifugal pump
20 won't lift anything and you must have a positive
21 pressure at the pump when it is pumping or it will quit.
22 So what he did is he raised the feed water heater so
23 the water would not flash into steam at the inlet of
24 the pump and quit pumping. Okay? So that was done.
25 Feed water pumps. He put new feed water pumps in. He

1 did put in one electrical and one steam turbine driven
2 pump. "Refinery oil pan fumes can be eliminated by use
3 of steam jets and pan condensers. This would replace
4 the present collecting system which is not satisfactory
5 expensive to operate." I know at the time we were
6 operating the four stills for making the electrode
7 pitch we had new coils in the condenser and we had a
8 steam jet and we had good pans too. All right. Number
9 10, water main and air lift. "The air lift requires a
10 35 horsepower air compressor to run almost continuously
11 The water main has corroded through in many places
12 probably due to high concentration of oxygen in this
13 aerated water." We did install an electric well pump.

14 Q. But you didn't replace --

15 A. A new water main throughout the plant? We
16 did not hook the water main to the electric pump. We
17 hooked it to city water.

18 Q. Did you install a new water main throughout
19 the plant?

20 A. We replaced this four inch pipe that had all
21 the holes in it that pumped water to the boiler. We
22 actually relocated. We put in a main to handle city
23 water. I can't remember what size it was. I'm sure it
24 was much larger than four inch.

25 Q. Was this done during your second visit when

1 Q. Why was that the worse?

2 A. This was in the trenches. It's the one that
3 leaked the most, was in water the most. This was right
4 see, the flooding was principally around the refinery.
5 So we had a four inch insulated pitch line. Back in
6 the late '40's and early '40's, as I mentioned before,
7 the part of the tar that was difficult to sell was your
8 residue. So in order to get rid of the residue we put
9 in a pitch line and we burned pitch in the boilers.

10 Q. In the '40's?

11 A. In the '40's, yes. Okay.

12 Q. So you would pump pitch through the pitch
13 line?

14 A. Insulated pitch line to the boilers. And
15 pitch was used as a fuel. It's a very excellent fuel.
16 Has a very high Btu content. In the '50's when the
17 residue of the tar became the valuable part of the tar
18 and you had trouble getting rid of the condensate, you
19 know, the condensate was harder to sell than the pitch,
20 you know, we made electrode pitch, some of the plants
21 made pipe enamel, all kinds of uses for the residue.
22 So we abandoned the tar line. We no longer burned it
23 because you could buy coal cheaper than you could buy
24 pitch. Pitch was more valuable than the coal. So what
25 we did is we used that line for the steam line between

1 you came to convert the boiler from coal to oil?

2 A. No. This was done at the time we ceased
3 using the pond. That is, the pond south of the
4 refinery which is referred to as the --

5 Q. Cooling pond?

6 A. Just pond on that drawing.

7 Q. On Minnesota 9?

8 A. Um-hum. When we quit using that that's when
9 we quit using is when we started using city water in
10 the boiler.

11 Q. And you say that was about?

12 A. It was in the '50's somewhere. Railroad
13 tracks. Well, we won't get into that. Many worn frogs
14 and switch points.

15 Q. That one we can pass by.

16 A. Steam lines and trenches. "Several sections
17 of steam lines of the tank farm run through trenches
18 where it's possible for them to become submerged." The
19 steam line was elevated above the ground and insulated.

20 Q. When was that done?

21 A. When was that done? I'd say in the early '60

22 Q. A good several years after United States 9
23 was written.

24 A. The worse steam line they had was the one
25 from the boiler room to the refinery.

1 the refinery and the boiler room.

2 Q. You used the former pitch line?

3 A. Yes. Which was insulated and above ground.

4 Q. I see. Was it cleaned out before it was
5 changed over to using steam to your personal knowledge?

6 A. Well, I'm sure -- the only way you can clean
7 out a pitch line is what you do is after you put pitch
8 through it -- well, it depends on where you're coming
9 from. You want me to go into how they have a pitch
10 line cleaned? If you want me to I will.

11 Q. Well, let me ask whether it was cleaned.

12 A. I'm sure it was or we couldn't have used it
13 for a steam line.

14 Q. But you don't have personal knowledge that it
15 was?

16 A. I have no personal knowledge of who cleaned
17 it. I think I know how they cleaned it, but this is
18 just our standard procedure for cleaning pitch lines.

19 Q. What is the procedure for cleaning pitch
20 lines?

21 A. If you are going from a still and you want to
22 blow pitch from a still to anywhere, to a tank or to a
23 boiler or anything else, when you get all through the
24 pitch will flow as long as it's kept hot. And after
25 you get through blowing you must get rid of all the

1 pitch in the line or it will set up solid and just
2 block the line. The only way you can unblock it is
3 practically take the line apart and clean it out. All
4 right. Now, in order to prevent all this what we did
5 is we would run the still until we got to the softening
6 point pitch we wanted. Okay. Then the first thing the
7 still operator would do would be to shut the scraper
8 line off and cut off the oil going to the condenser.
9 All right. This would cause the pressure in the still
10 to rise from about 6 pounds to about 15 pounds. All
11 right. As soon as the pressure got up to about 15
12 pounds he would open the pitch valve wide. This is all
13 state-of-the-art because, you know, this is something
14 you can only learn by doing. He opened the pitch valve
15 wide because if you just barely crack it and let the
16 pitch trickle it's going to solidify on you. So what
17 he did was he opened the valve wide and this 15 pounds
18 pressure would push the steam through the line and it
19 would go all the way. Once it got started, once you
20 got pitch going through the line, that line was hot and
21 it would pump the water then at the still temperature.

22 Q. So it would pump all the pitch out?

23 A. And then right at the end when the pitch got
24 down to the bottom of the still then the scrapers would
25 break through. Now you got a little bit of pitch there

1 and you got no pressure in the still. So what they did
2 then is they opened the steam line to the still and
3 just brought the pressure up to about 10 pounds or so
4 and shut it off again and steam would go through and
5 blow all that pitch out. You had an empty line. That
6 was the standard method of cleaning the pitch lines.

7 Q. Thank you. But referring you back to United
8 States 9 you don't recall if the entire system of steam
9 lines and trenches was reinstalled above ground and
10 insulated within a short time after this memorandum
11 U.S. 9 was written?

12 A. You're asking about steam lines and trenches?

13 Q. Um-hum.

14 MS. CONSTOCK: Perhaps you can rephrase
15 the question.

16 Q. Let me go from the beginning. Returning you
17 to the initial question which was item number 12 which
18 was steam line in trenches on U.S. 9, I'd asked you
19 which of these recommendations were accomplished. And
20 Mr. Lauck here suggests that this entire system should
21 be reinstalled above ground and insulated. I'm asking
22 whether that was done within a short period of time
23 after Mr. Lauck's memorandum to your personal knowledge.

24 A. It was done but I couldn't tell you when. I
25 don't know how soon after it was done.

1 Q. Okay. Thank you.

2 (At this time United States Deposition
3 Exhibit 10 was marked for identification by
4 the Court Reporter.)

5 BY MR. BIRD:

6 Q. Mr. Hennessy, I show you now what's been
7 marked United States 10 which is a three page document
8 containing date stamp number pages 104117 through
9 104119. It appears to be a memorandum on Republic
10 Creosoting Company stationery from F. J. Mootz to H. L.
11 Holstrom dated March 3, 1955. Mr. Hennessy, do you
12 recall seeing United States 10 previously?

13 A. No, I do not recall that at all.

14 Q. Was Mr. Mootz at this time head of the
15 refining division for Reilly Tar?

16 A. Doctor Mootz was the predecessor of Mr.
17 Leshor. Yes, he was the production manager.

18 Q. Mr. Holstrom was at the time manager of the
19 Saint Louis Park plant?

20 A. Yes.

21 Q. Does United States 10 appear to be a document
22 which Mr. Mootz would have --

23 (At this time a recess was held.)

24 MR. BIRD: Going back on the record
25 could you please read the question that I asked when we

1 went off the record?

2 (At this time the requested portion of
3 the record was read aloud by the Court
4 Reporter.)

5 BY MR. HIRD:

6 Q. Let me withdraw that and reask a complete
7 question. Does United States 10 appear based on your
8 experience as a Reilly employee to be a document which
9 Mr. Mootz would have written in the regular course of
10 his duties at the company?

11 A. Yes, it does.

12 Q. I'd like to ask you to look at the bottom of
13 the first page of United States 10 to the paragraph
14 which is indented following the Arabic numeral 1.
15 There Doctor Mootz states that, "You should make a
16 disposition -- states to Mr. Holstrom that he, "Should
17 make a disposition of certain zinc chlorides by
18 disposing of it through your regular ground water
19 system." Do you understand Mr. Mootz to be referring
20 here to the oil-water separator which you designed for
21 Saint Louis Park?

22 A. No. He's referring to zinc chloride solution
23 number 10 tank.

24 Q. When he uses the phrase, "Your regular ground
25 water system," is he referring there to the oil-water

1 system that you designed in Saint Louis Park, the
2 oil-water separator system which you designed at Saint
3 Louis Park?

4 A. I don't know what he means by ground water
5 system. As I say, Doctor Mootz was no engineer. It's
6 very confusing. We did have some rain water go through
7 that separator, but if you ask me he says ground water.
8 I assume he means water running over the top of the
9 ground.

10 Q. So is your understanding then that he's
11 suggesting that Mr. Holsaerom pour the zinc chloride
12 simply over the ground?

13 A. I don't know what he means. I don't even
14 know where the zinc chloride came from. This is the
15 first I knew about it I believe. I don't know where
16 the zinc chloride came from, what it was used for and I
17 don't understand Doctor Mootz' terminology here.

18 Q. "I do not see a future use for it, should
19 dispose of it through your regular ground water
20 system." If zinc chloride was run through the
21 oil-water separator that you designed at Saint Louis
22 Park -- or rather zinc chloride solution was run
23 through the oil-water separator that you designed at
24 Saint Louis Park, would that separator be effective in
25 separating out the zinc chloride or would it wash right

3
1 through the separator?

2 A. I have no knowledge of zinc chloride. I can
3 talk about sodium sulfate because I've had experience
4 with it. Zinc chloride leaves me completely blank. I
5 don't know what it would do to the water. I don't know
6 whether it would float or sink or what it would do. I
7 don't know.

8 Q. When you designed the oil-water separator,
9 you didn't design it with the intent that it would
10 function in terms of extracting zinc chloride from any
11 substance that --

12 A. This is the --

13 Q. -- went past through?

14 A. This is the first I knew that they intended
15 to even put it through it.

16 Q. When you designed the oil-water separator,
17 you did not design it with the intention that it would
18 separate out zinc chloride?

19 A. No. I can't remember that at all.

20 Q. If you turn to the second page of United
21 States 10 and look briefly at the paragraph which
22 follows the Arabic numeral 3 in which Doctor Mootz
23 refers to an emulsion in storage tank number 3. I
24 believe yesterday you testified that you weren't very
25 aware of emulsions that may run through the oil-water

1 separator that was designed at Saint Louis Park. Would
2 this refresh your recollection that, in fact, there
3 were emulsions on the plant and they might indeed run
4 through the oil-water separator?

5 A. Well, what I said yesterday was that -- I
6 went into the description of getting tar acids out of
7 the tar. At the end when you have your carbolate layer
8 you have a carbolate layer and you have I guess it's a
9 neutral oil layer. In between the two you don't have
10 just a straight line. You have a little thin layer of
11 emulsion. That emulsion I talked about. That's the
12 emulsion he was using for a weed killer. Do you
13 remember that?

14 Q. Yes, I remember that.

15 A. I don't know what emulsions he's talking
16 about here. I assume -- let's see. How much did he
17 have?

18 Q. I believe it's half a million gallon tank of
19 emulsions.

20 A. Which is a half million gallon tank. Number
21 3 is a half million tank. That doesn't mean he had a
22 half million gallons of emulsion I hope. Okay. That's
23 all I can tell you. I didn't remember that he had
24 emulsions in tank number 3. In fact, I doubt that I
25 ever knew it.

1 Q. If this emulsion in tank number 3 was run
2 past the oil-water separator, the oil in that emulsion
3 would not be separated out?

4 A. No, it would not. No. I don't know what
5 this material is where he's going to try to de-emulsify
6 it. I don't know how the test went. I see he's
7 sending a one gallon sample to the Reilly laboratories.
8 This is the first I heard of that. I'm a complete
9 blank on this.

10 Q. So you would have no personal knowledge to
11 what extent emulsions were present at Saint Louis Park
12 at any time from the time that you designed the --

13 A. No.

14 Q. -- oil-water separator to the time the plant
15 closed?

16 A. That's correct because this is strictly
17 production which I wasn't into at all.

18 MR. HINDERAKER: While you're getting
19 the next documents may I ask a question? Mr. Hennessy,
20 do you know what Doctor Mootz had his doctorate in?

21 THE WITNESS: Chemistry I believe. No.
22 No. I take it back. He had his doctorate in
23 metallurgy, I believe. He either had a Bachelor's
24 Degree in metallurgy and a doctorate in chemistry or he
25 had a Bachelor in chemistry and a doctorate in

1 metallurgy. I don't know which way. It was one or the
2 other.

3 MR. HINDERAKER: When you say Doctor
4 Mootz was no engineer you mean --

5 THE WITNESS: He never went through an
6 engineering school. He never trained in engineering.
7 His whole career at Reilly was in production.

8 MR. HINDERAKER: So he was not a
9 chemical engineer?

10 THE WITNESS: He was not a chemical
11 engineer. He was a chemist.

12 MR. HINDERAKER: I see. Thank you.

13 (At this time United States Deposition
14 Exhibit 11 was marked for identification by
15 the Court Reporter.)

16 BY MR. HIRD:

17 Q. This document which has been marked United
18 States 11 is a one page document, date stamped 100711
19 and appears to be a memorandum from H. R. Horner to F.
20 J. Mootz dated July 31, 1957. Mr. Hennessy, do you
21 recollect receiving this document at any time?

22 A. I don't remember the document, but I know the
23 problem. I'm familiar with it.

24 Q. Does this appear to be a letter, a memorandum
25 written by Mr. Horner in the course of his duties at

1 Reilly Tar?

2 A. Yes, it is, I'm sure.

3 Q. Are you referred to in this memorandum?

4 A. Yes, I am somewhere down here. I wasn't
5 given a copy, but I -- oh, here, middle of the second
6 paragraph. I had Mr. Hennessy design spring-loaded
7 bolts that would keep the cover tight.

8 Q. What is the problem of the messy situation
9 that Mr. Horner refers to that he said you would come
10 up with a design to solve?

11 A. The problem is you have a pitch tank and the
12 pitch tank is hot, the material in the tank is very hot
13 So you have a hot tank. If scrapers come out the
14 manhole -- they're very heavy scrapers. They'll
15 condense on top of the tank and run down into the
16 insulation and then you have fires on a pitch tank.
17 The only way you can put the fire out is tear the
18 insulation off and clean the tank and then put the
19 insulation back. So every time you had one of these
20 messes, why, it was expensive. It also interfered with
21 production which made them very unhappy.

22 Q. So how did you solve that problem?

23 A. My first attempt to solve it was
24 spring-loaded bolts. What we did is -- in order for
25 you to understand this I'm going to have to go into a

1 little more detail. These condensers all had air
2 condensers on them which condensed the scrapers. The
3 scrapers are easily condensed because they're very high
4 molecular weight scrapers. Now, I won't go into that.
5 I say they're easy to condense. They're easy to
6 condense if you know how to do it. If you don't
7 they're very difficult. But anyway, our plan and we
8 did was to condense these scrapers in these air
9 condensers. Now, the problem was that if you get just
10 a little bit of water or at times if there is too much
11 back pressure in a condenser, it would lift the manhole
12 cover off. The manhole cover was never put on tight.
13 There was a gasket, but it wasn't bolted down for
14 safety reasons. We didn't want to blow the tank up.
15 The tank would only take -- most storage tanks are
16 designed so that the top head will only take a half
17 pound per square inch pressure, whereas the bottom will
18 take a lot more pressure. And this is a safety measure
19 in that if the tank should rupture, you ruptured at the
20 top where the liquid won't escape. You don't want the
21 liquid --

22 Q. Let me ask a question here by way of
23 clarification. We're talking here now about problems
24 with the condensers in pitch storage tanks at the Saint
25 Louis Park refinery?

1 A. Oh, yes. Pitch storage tanks all over. Then
2 I'll get back to this. I'm just trying to give you a
3 little background. If I answer the question yes or no
4 I don't think it will make any sense.

5 Q. I just wanted to get an accurate statement.

6 A. I don't want to make a speech. That isn't
7 the point. But anyway to get back to the manhole
8 covers, the first attempt was we put springs on which
9 would allow the manhole cover to lift when the pressure
10 in the tank reached a half a pound, okay, or a little
11 less than a half a pound. Now, these worked for awhile
12 but after awhile due to the springs getting out of
13 adjustment or something, why, they wouldn't work.
14 They'd hold the cover on and they build up pressure and
15 never ruptured a tank, but we did have when you get
16 about a half pound pressure in a tank or a little more,
17 much more than half a pound, why, the scrapers come out
18 and they hit the top of the tank and they condense, as
19 I said before, and make the top of the tank very black.
20 So the final design was a way which couldn't get out of
21 adjustment. What we did is we had a collar over the
22 manhole so it couldn't blow off and a chain and then on
23 that we put a weight. The weight was just enough so
24 that just below a half pounds per square inch it would
25 hold the cover tight against the gasket. Then this

1 design was very successful. If you had a little bit of
2 water should get in there for any reason, why, it
3 flashed into steam and you had a bump that was a little
4 more than half a pound, this thing would relieve the
5 pressure just like a safety valve and come back down
6 and stop it. It worked fine, the second design. This
7 design didn't. This design worked for awhile but then
8 it got out of adjustment.

9 Q. When was the second design installed at Saint
10 Louis Park?

11 A. Shortly after this one. We didn't use the
12 springs very much at all. In fact, most of the plants
13 never saw the springs.

14 Q. Now, when you said that the scrapers, during
15 the time before this design was instituted, would
16 collect at the top of the tank and condense, would that
17 be a condense pitch or tarry substance?

18 A. It would be pitch or very heavy oils from the
19 pitch. Actually, I think you're misunderstanding me
20 again. Maybe you are. I think the oils you're talking
21 about are inside the tank. I'm talking about oils that
22 come through the manhole. The oils that come through
23 the manhole hit the manhole and then they're deflected
24 back against the tank and they condense on top of the
25 tank. If you can visualize a steel tank.

1 Q. So this is before they ever get into the tank
2 itself?

3 A. Oh, no. It's after they're in the tank.
4 It's after they're in the tank.

5 Q. I'm sorry. Why don't you go ahead with your
6 visualization.

7 A. But anyway, when you had these bumps and
8 pressure, the scraper would come up and hit the manhole,
9 lift it and the manhole would deflect the vapors down
10 against the top of the tank where they would condense
11 on the cold aluminum covering the insulation. The
12 insulation was waterproofed to protect --

13 Q. So this would be on the exterior of the tank?

14 A. This is on the exterior. Then after awhile
15 these heavy oils would eventually seep down into the
16 insulation. Plus another factor that we found out was
17 we were using calcium silicate insulation. And calcium
18 silicate is a catalyst to promote combustion with these
19 oils. So you would have a fire on top of the tank. It
20 would be a smouldering fire under the aluminium but
21 he'd see smoke coming out.

22 Q. Would these oils ever seep down on the ground
23 below the tank?

24 A. No. This is just the top. The worse thing
25 about it is it would discolor the top of the tank and

1 it would look terrible and it would cause these fires
2 inside, smouldering fires inside the insulation.

3 Q. I'd ask you now to take a look at State
4 Exhibit 15. That's in your booklet.

5 A. Okay. I'll read it.

6 Q. Sure. Go right ahead. Okay.

7 A. Okay. I read it.

8 Q. Mr. Hennessy, I note on the bottom of State
9 Exhibit Number 15 that you are referred to as a carbon
10 copyee. Do you recall receiving State Exhibit 15?

11 A. I'm sure I received it. I don't recall it,
12 of course, but I'm familiar with it, yes.

13 Q. The opening two lines of State Exhibit 15
14 refer to steam lines at the Saint Louis Park plant.
15 Were these the same steam lines that Mr. Lauck was
16 referring to in United States Exhibit Number 9?

17 A. Yes, it is, because he's talking about steam
18 lines to the tank farm through the trenches.

19 Q. In United States Exhibit 9 I believe and in
20 the other documents we saw dated around the same time,
21 1954, Mr. Lauck mentioned that these steam lines had
22 many leaks and recommended that they be replaced
23 because of that.

24 A. Um-hum. Right.

25 Q. Based on your reference now to state Exhibit

1 Number 15, would that refresh your recollection that
2 these steam lines were not replaced by October 7, 1958,
3 the date of State Exhibit 9?

4 A. All of them were not, obviously. Only the
5 steam line to where we used the pitch line from the
6 boiler to the refinery. But the steam lines and the
7 trenches at the tank farm obviously were not replaced
8 because this is what he's talking about. They were not
9 replaced until 1958, yes.

10 Q. At least until 1958?

11 A. Yes.

12 Q. But you have no independent knowledge that
13 this recommendation made by Mr. Reilly here was acted
14 upon in a specific time afterwards?

15 A. This is not a recommendation. This is an
16 authorization to proceed and spend \$12,500 doing it.
17 It's a work order.

18 Q. Mr. Reilly in State Exhibit 9 says that when
19 emersed in water these steam lines would lose 12,000 --
20 I believe that's the symbol for Btu?

21 A. No. Pounds.

22 Q. Pounds of steam per hour. Would you have any
23 reason to disagree with that assessment?

24 A. That sounds accurate to me.

25 Q. Mr. Hennessy, do you know whether the

1 treatment cylinders used for wood treating at the Saint
2 Louis Park plant were insulated at any time during the
3 plant's history?

4 A. The treating cylinders?

5 Q. Yeah.

6 A. They were not insulated, but they were
7 enclosed with the building, they were inside. I say to
8 my knowledge they were not insulated. If they were
9 insulated I don't know it. I don't think they were.

10 Q. Just one question. You said on the basis of
11 referring to State Exhibit 15 that this demonstrated to
12 you that the steam lines to the storage tank and
13 loading stations had not been replaced. But you said
14 that other steam lines may have been replaced between
15 1954 and 1958. Do you have any independent knowledge
16 that other steam lines were replaced between 1954 and
17 1958?

18 A. As I mentioned before, I can't tell you the
19 year, but we started using the overhead pitch line from
20 the refinery to the boilers for steam. We had the flow
21 the opposite way. We brought steam from the boilers to
22 the refinery in that old four inch pitch line.

23 Q. So as far as you know, none of the steam
24 lines may have been replaced by 1958 or may have been
25 replaced later as far as your personal knowledge?

1 A. If you're talking about yard piping, steam
2 lines going between various areas of the yard, you're
3 correct, yes.

4 (At this time United States Deposition
5 Exhibit 12 was marked for identification by
6 the Court Reporter.)

7
8 (At this time a lunch recess was held.)

9 BY MR. HIRD:

10 Q. Mr. Hennessy, this morning I showed you a
11 number of documents in which Mr. Lauck and I believe
12 Mr. Horner referred to tar and oil in the cooling pond
13 at the Saint Louis Park plant. Do you have any
14 personal knowledge or any reason to believe that these
15 gentlemen were not accurate and tar and oil was not in
16 the cooling pond at the Saint Louis Park plant?

17 A. I question the tar. The oil I do not
18 question. But I question whether tar was in it.

19 Q. What is the basis of your questioning the tar
20 was in it?

21 A. The basis of my questioning it is that I
22 don't know how it would get in there. There was no
23 connection between any tar lines and the pond.

24 Q. Mr. Hennessy, I'd like to pick up again with
25 what was marked as United States Exhibit 12, which I

1 think was just handed to you before the break. Have
2 you had an opportunity to review United States Exhibit
3 12?

4 MS. CONSTOCK: I don't believe we have
5 unless we can just take a minute to do that.

6 A. All right.

7 Q. United States Exhibit 12 is a two page
8 document containing Poilly date stamp pages numbers
9 304204 through 304206 and appears to be a memorandum
10 from T. O. (sic) Gruenhagen to H. R. Horner dated
11 October 8, 1959. There is an indication on it that a
12 carbon copy was sent to Mr. Hennessy. Mr. Hennessy,
13 did you receive United States Exhibit 12?

14 A. I'm sure I did. I don't remember it, but I'm
15 sure I did, yes.

16 Q. Who was T. O. (sic) Gruenhagen?

17 A. It's really T. C. Gruenhagen. He was an
18 engineer that worked for our department in Indianapolis.

19 Q. What years was Mr. Gruenhagen at the
20 engineering department in Indianapolis?

21 A. Oh, from late '50's to maybe the mid '60's.

22 Q. Do you have any idea of what Mr. Gruenhagen
23 did after he left the engineering department at Reilly
24 Tar?

25 A. He went to work for National Starch as a

1 chemical engineer.

2 Q. Have you kept in touch with him since then?

3 A. No, I haven't kept in touch with him. I see
4 him once in a great while I'll run into him, but I have
5 not kept in touch with him.

6 Q. Is he in Indianapolis?

7 A. Yes, he is.

8 Q. Is he still working for National Starch?

9 A. Last I heard he was still working for
10 National Starch.

11 Q. Mr. Hennessy, United States 12 appears to be
12 an infrared analysis of certain samples taken from the
13 electrode pitch blending operation at Saint Louis Park,
14 is that correct?

15 A. I don't think it was taken from the blending
16 operation. I think it was taken from the solidifying
17 operation. It was taken from the pans themselves.

18 Q. Those were the pans that you designed at
19 Saint Louis Park?

20 A. Correct, yes, um-hum.

21 Q. I'd like you to turn your attention to the
22 second page of United States Exhibit 12 beginning with
23 the -- look under the portion headed "Fume Analysis".
24 Is this the results -- does this portion of the
25 document state Mr. Gruenhagen's results of his infrared

1 testing of those samples from the Saint Louis Park
2 plant?

3 A. Yes. This is his report. So this is the
4 result of the work he did, um-hum.

5 Q. I see that Mr. Gruenhagen refers to the
6 compound phenanthrene.

7 A. Phenanthrene.

8 Q. Do you have any knowledge of the compound
9 phenanthrene?

10 A. It's a very high boiling oil. That's all I
11 know about it. I'm not a chemist, but that's what it
12 is.

13 Q. Mr. Gruenhagen also refers to the compound
14 fluoranthene as being found in the infrared analysis.

15 A. Same thing. A very high boiling oil.

16 Q. Then the compound pyrene as being found.

17 A. I believe that's a very high boiling oil. It
18 would have to be or it would never be there.

19 Q. Do you have any reason to believe that these
20 results are inaccurate?

21 A. Are inaccurate, no. No, I don't. Mr.
22 Gruenhagen was a competent engineer and careful.

23 MR. SHAKMAN: Can I ask for a
24 clarification what you mean by high boiling oil?

25 THE WITNESS: He was measuring air

3.
1 pollution. That's what Mr. Gruenhagen was measuring.
2 He talks about dust. Those oils at atmospheric
3 temperatures are solids. So what happens is you put
4 the pitch in the bay, the fumes come off and they
5 immediately solidify when they hit the air. They came
6 out of the refinery building as dust. He's measuring
7 the amount of dust in the air. Okay?

8 DR. SHAKMAN: What temperature do they
9 come into that at?

10 THE WITNESS: 400 degrees Fahrenheit or
11 200 degrees C.

12 BY MR. HIRD:

13 Q. Mr. Gruenhagen also mentions that he found
14 the compound naphthalene.

15 A. No. He said he did not find much naphthalene
16 didn't he? Or did I read --

17 Q. He said he did not find much, but that would
18 indicate that he found some naphthalene.

19 A. Yeah. Probably. I'm surprised it was there
20 but he found some naphthalene.

21 Q. Why are you surprised that the naphthalene
22 was there?

23 A. Well, now, wait a minute. No, I'm not
24 surprised either. Naphthalene sublimes at atmospheric
25 temperature and it would be a dust. In other words,

1 when you put a mothball in your attic -- you buy
2 mothballs. You put it in your attic and the mothballs
3 disappear but you never get any liquid. It sublimates.
4 It goes immediately from the solid state to the vapor
5 state. Naphthalene when you go the other way you can
6 get a liquid if you heat it and distill. If you melt
7 the naphthalene and distill it you get a liquid. But
8 then when you put that liquid in a pan or container it
9 will turn solid at room temperature. So the
10 naphthalene was a dust. That's why he got it.

11 Q. Was naphthalene another high boiling oil?

12 A. It's not nearly I don't believe -- again I'm
13 no chemist. I don't believe it's nearly as high
14 boiling as some of these other oils that he mentioned.

15 Q. Are you familiar with the term polyaromatic
16 hydrocarbons?

17 A. I wasn't then but I'm familiar with it since
18 I've been reading all these EPA documents.

19 Q. Why are you now reading EPA documents about
20 polyaromatic hydrocarbons?

21 A. It used to be that your water was
22 contaminated with coal tar, coal tar oils. Now they're
23 contaminated with polynuclear aromatic hydrocarbons.

24 Q. So your understanding is that coal tar oils
25 generally include polynuclear aromatic hydrocarbons?

1 A. Yes. As I understand what, again I'm not a
2 chemist, but as I understand what a polynuclear
3 aromatic hydrocarbon is, it is one with a ring, whereas
4 the petroleum oils have links, chains.

5 Q. By ring do you mean a benzene ring?

6 A. Yes.

7 Q. The poly would refer to more than one benzene
8 ring?

9 A. Yes.

10 Q. Would you understand the chemical
11 phenanthrene to be a polynuclear aromatic hydrocarbon?

12 A. Yes. I would call it coal tar oil, but he
13 calls it polynuclear aromatic.

14 Q. Would you also believe the fluoranthene to be
15 a polynuclear aromatic hydrocarbon?

16 A. If it came from coal tar it was, yes.

17 Q. The compound pyrene, would you understand
18 that compound to be a polynuclear aromatic hydrocarbon?

19 A. I don't know what pyrene is, but if it came
20 from coal tar it is I'm sure.

21 Q. If it was found in this pitch plant operation
22 that Mr. Gruenhagen tested, it would be a derivative of
23 coal tar?

24 A. Yes. It had to come from the tar. Only
25 place it would be coming from.

1 Q. Is naphthalene a polynuclear aromatic
2 hydrocarbon?

3 A. Yes. In spite of the fact that the petroleum
4 industry put us out of the naphthalene business by
5 clobbering us and making it, but yes, it is.

6 Q. I believe Mr. Gruenhagen refers to a
7 reference for the constituents of coal tar as Erdol Und
8 Kohle Heft 9.

9 MR. SHAKMAN: E-R-D-O-L. Petroleum oil
10 in German.

11 Q. And Kohle Heft 9. The September 1955 issue
12 page 637. Did you have that journal in your library at
13 the engineering lab at Reilly Tar?

14 A. I have no idea whether we had that journal or
15 whether he went to the state library or where he got
16 the journal. I'm not familiar with this journal. I
17 can't remember where he got it.

18 MR. SHAKMAN: Did your library have
19 foreign reference languages?

20 THE WITNESS: Yes.

21 BY MR. HIRD:

22 Q. Did Mr. Gruenhagen read German?

23 A. That I don't know.

24 Q. Did any engineer in your lab read German?

25 A. I'm sure they did. I know we have engineers

1 now that read German. I can't tell you who their names
2 are, but I'm sure some of the chemists could read
3 German, especially Doctor Otto could read German, but I
4 don't think he was ever involved in this.

5 Q. But he was at the Reilly grounds?

6 A. At that time, yes.

7 Q. Mr. Hennessy, could you look now at Minnesota
8 Exhibit Number 16? Mr. Hennessy, I notice that you are
9 carbon copied on the bottom of Minnesota Exhibit Number
10 16. Did you receive a copy of this document?

11 A. I'm sure I did. I can't remember the exact
12 document, but I'm sure I received a copy, yes.

13 Q. In this document Mr. Finch refers to the
14 condition of the valves and the headers at both ends of
15 the Saint Louis Park refinery and mentions that a Mr.
16 Werner had discussed their condition with you. Do you
17 recall that condition with Mr. Werner?

18 A. I don't recall the conversation with Mr.
19 Werner, but I recall the incidents with the valves.

20 Q. Would you tell us what the problem was with
21 the valves?

22 A. Well, the valves were made by companies that
23 no longer made the valves. Those particular valves
24 were no longer made so you couldn't buy parts for them.
25 So the problem was that when they opened the valve they

1 didn't know which tank the oil was going to. For
2 instance, they might pump the water cut into number 1
3 oil tank or might pump number 2 cut into number 4 cut
4 or something like that. This caused an inventory loss
5 because this would ruin the specification of the oil
6 and they'd have to rework it.

7 Q. So these are the valves that would control
8 the various cuts of tar as they left the retort at the
9 end of the refining process through the various tanks
10 where they'd be stored?

11 A. These are valves that control the condensate
12 which came off the condensers at the stills. There
13 were receivers. Each still had a receivers. When the
14 receiver had so much oil in it, say for instance, at
15 the end of what they called first cut they would open
16 the valve to run the tank to the proper -- they would
17 open the valve to run the tank, the receiver to the
18 proper tank, proper receiving tank. Or let's call it
19 the proper working tank. The problem was that with all
20 valves closed the oil ran out, some of it ran out. The
21 receiver pan -- well, they wouldn't run out as fast as
22 running in the pan. The operator wouldn't know it
23 until he started checking how much oil he had in his
24 other pans. Then he would immediately know it. Run
25 out of his receiving tanks.

1 Q. When you say pan do you mean open pans?

2 A. No. They had covered on them. I'm not
3 talking about the pitch pans. I'm talking about the
4 receiving pans. The way the still operated we had a
5 vapor line from the still to a condensor. The
6 condensor was elevated. See, scrapers can go uphill.
7 You don't need to worry about pumping or anything. So
8 pressure in the still would force the vapors over to
9 the condensers. At the condensers it's condensed and
10 the oil ran down into another pan which was covered.
11 Actually, the pans, even the condenser pans, at Saint
12 Louis Park were covered. But the receiver pans were
13 covered. All right. Then the fellow when he got so
14 much oil in the pan he would run it to -- I call them
15 working tanks, different people call them day tanks.
16 They have different names for them but actually the
17 working tanks where you're actually working with the
18 material. Then from there it was pumped to the
19 treating plant to be either used as is or put in
20 another tank as is or blended with other oils to meet
21 some specification.

22 Q. So these were the valves between the retort
23 and the pan and not the valves between, say, the pan
24 and the working tank or the day tank?

25 A. These are the valves in the header between

1 the receiving pans after the oil was condensed, the
2 receiving pans under the condenser and the day tanks or
3 the working tanks.

4 Q. I see. Now, you mentioned that the problem
5 with the valves was such that the material would run
6 out of the pans. Would you mean by that they would run
7 out of the pans into the day tanks?

8 A. Yes. I don't know how many tanks there were.
9 I doubt if this picture's accurate.

10 Q. You're looking at Minnesota Exhibit 9?

11 A. 9. Yes. This shows 7 tanks.

12 Q. 7 tanks?

13 A. So we had 7 lines running to 7 tanks.

14 Q. Seven working tanks or day tanks?

15 A. That's right. And we had valves connecting
16 each of these 7 tanks to a header. Now, when he got
17 the amount of oil in the receiver pan under the
18 condenser, he would open a valve under the receiver pan,
19 the oil would run to this header, then he would open
20 the proper valve to put it in the working tank he
21 wanted to put it in. The valves on the headers is what
22 was leaking.

23 Q. So the result of the leaking would be that
24 the working tanks would fill up too quickly or before
25 one would be ready to have them filled?

3
1 A. Well, he would open a valve and the tank he
2 was trying to go to the liquid level would rise in it
3 but might also rise in another tank and it loused up
4 his production. First of all, well, he produced all
5 this oil and he was ruining it, some of it, see. That
6 was the problem.

7 Q. Would the leaking result in any way to any of
8 the oil leaving the enclosed system?

9 A. No. Because the pipes weren't broken. The
10 oil was leaking through the valves. In other words,
11 when you closed the valve it didn't -- it leaked.

12 Q. Mr. Finch in the State Exhibit Number 16 says
13 that the situation is serious enough to be given
14 appropriate consideration and asks that you schedule a
15 trip to see the problem firsthand. Do you recall going
16 to the plant to see the problem firsthand?

17 A. No, I did not. I sent Mr. Fenoglio.

18 Q. Do you know where Mr. Fenoglio is today?

19 A. Unfortunately he's deceased. Died pretty
20 young. He died about ten years ago.

21 Q. Mr. Hennessy, I'd like you now to take a look
22 at State Exhibit Number 3, if you would. In order to
23 save you the difficulty of reviewing the whole document,
24 I'll just say that I'm going to just ask you questions
25 about the segment beginning on the first page with

1 Roman numeral number III and ending on the second page
2 at the end of that just where Roman numeral IV begins.

3 A. There seems to be a page missing. Maybe not.
4 303640, is this the first page?

5 Q. This is the first page that we have. There
6 may be other pages, unfortunately, we have been unable
7 to locate.

8 A. All right.

9 Q. Mr. Finch, do you recall seeing State Exhibit
10 Number 3 before at all?

11 A. No. I'm trying to find out who wrote this.

12 Q. Well, I can perhaps enlighten you. During
13 the deposition Mr. Leshar testified that he prepared
14 this document and that he prepared it in about 1961.

15 A. Okay. I was going to say I didn't remember
16 this thing at all.

17 Q. Do you recall any conversations with Mr.
18 Leshar?

19 MS. COMSTOCK: I don't believe the
20 witness has had a chance to review it.

21 Q. I apologize.

22 A. Okay. I read it.

23 Q. Do you recall a managers' meeting in or
24 around 1961 at which time the subject of the waste
25 water system at Saint Louis Park came up?

1 A. They had these managers' meetings every two
2 or three years. I can't recall any particular meeting.
3 In fact, I didn't even attend a lot of them. Some of
4 them I did.

5 Q. Do you recall talking to Mr. Leshar in or
6 around 1961 about waste water problems at Saint Louis
7 Park?

8 A. I probably did. I don't remember it.

9 Q. Based on your review of this section marked
10 Roman numeral III do you believe that Mr. Leshar is
11 here discussing the settling basin at Saint Louis Park?

12 A. He's discussing it in one paragraph, yes.

13 Q. Which paragraph is that?

14 A. The second paragraph on page 5.

15 Q. You don't believe that he is discussing the
16 settling basin in Saint Louis Park on the first
17 paragraph of the section which begins on page 4 and
18 goes over to page 5?

19 A. Well, I think it's discussing the basin in
20 that the runoff water bypasses the basin, yes. Um-hum.
21 He also says the tile. That tile is still in place
22 whenever this was written. 1,200 feet long. And
23 empties into an open ditch. The open ditch is what we
24 were discussing the other day. Okay. All right. Yes,
25 he's discussing water bypassing the basin in the first

1 paragraph and he's discussing the basin itself in the
2 second paragraph. Is that correct?

3 Q. I'm afraid I have to ask you that question.
4 The first sentence of the second section marked "Waste
5 Water" Mr. Leshor states that, "The refinery
6 contaminated water was laid out to go into a settling
7 basin with runoff bypassing the basin." Would you
8 understand that to mean that rain water, rain runoff,
9 would not be running through the basin --

10 A. Right.

11 Q. -- in its original design?

12 A. That's correct. However, I mentioned to you
13 there was a small area that we allowed it to run
14 through. But generally speaking you're correct, right.

15 Q. Mr. Leshor goes on to say, "The original
16 design plan pumping off of runoff in about two days."
17 As the designer of the basin would you agree with that
18 statement?

19 A. Where is this statement now? "The original
20 design plan pumping off the runoff in two days." All
21 right. Now he's talking about the pump -- or the tile
22 that pumps -- we had an area where rain water was
23 pumped through the settling basin, as I described
24 before. Now what he's saying with conditions as they
25 existed at that time this pump is way too small and

1 water -- that water is mixed with other water and runs
2 right past the settling basin until it gets a foot high
3 and then it floods it. That's what he's talking about.

4 Q. Let me just take you back a step. When you
5 originally put in the settling basin, it was designed
6 in a situation where one expected that runoff could be
7 pumped out within two days. Would that be a correct
8 statement? I'm taking you back now to 1941 when you
9 designed the basin.

10 A. Your question was that the runoff could be
11 pumped out in two days?

12 Q. Was that the way that you designed the basin
13 to fit into a system where runoff could be pumped off
14 in two days?

15 A. I can't remember. But we did design it with
16 pumping a certain amount of runoff through the basin.
17 Now, I can't remember the figure of two days. It
18 sounds logical, but I can't remember.

19 Q. If the runoff as you described the runoff was
20 moving into the settling bin -- let me withdraw the
21 question. I'll have you look a little later down.
22 Later down at the end of the first complete paragraph
23 on page 5 Mr. Leshner says that, "The present sump is 30
24 years old, of timber construction, it doesn't have
25 sufficient set detention time." By "sump" do you

1 believe he's referring there to the settling basin that
2 you designed or the sump before that?

3 A. Where is this? Here. Okay. That's the only
4 basin he could be talking of because I think it was the
5 only one of a timber construction that I remember.

6 Q. Did you ever observe the flow of water
7 through the tile which led to the settling basin about
8 the time of this document in 1961?

9 A. No. I don't think I did because the only way
10 I could have observed it was to go to a manhole and
11 lift the lid and I don't remember ever doing that.

12 Q. Would you as the designer of the settling
13 basin and on the basis of your observations at the
14 plant agree with Mr. Lesher's assessment that it would
15 increase runoff, the pump or tile could be too small to
16 effectively carry the water down to the settling basin?

17 A. If he's getting a lot more water for which
18 the tile was designed, it would definitely be too small.
19 There is no question about that.

20 Q. What would be the effect if the tile was too
21 small?

22 A. It would flood the trenches and it would --
23 water standing in the yard above the trenches would
24 eventually drain into the trenches as a small tile took
25 it up very slowly. It would take awhile for the water

1 to go down.

2 Q. Which trenches are these?

3 A. Pipe trenches.

4 Q. These would be on the plant property?

5 A. Yes.

6 Q. How would that ultimately effect the water

7 moving down off the plant property through the top?

8 Would it come down with a greater flow rate?

9 A. Yes, it would. Definitely.

10 Q. Would that flow rate be in great excess of
11 the flow rate that you used when you were calculating
12 the size of the detention pond --

13 A. Yes.

14 Q. -- in the settling basin?

15 A. Because I only figured on rainfall. That's
16 correct.

17 Q. At the end of the opening paragraph on page 5
18 Mr. Leshar says, "The area at and along the entire
19 ditch along the plant and past the entrance looks
20 particularly bad. It is dirty and black with dirt and
21 tar." Is Mr. Leshar here, to your understanding,
22 referring to the ditch that the effluent came out of at
23 Saint Louis Park or came into after it was leaving the
24 oil-water separator?

25 A. He's referring to the ditch, yes. He's

1 referring to the ditch along the east side of the plant
2 and the south side of the plant which carried water
3 under Walker Street.

4 Q. This would be the ditch into which water
5 would come after it left?

6 A. After it left the tile, um-hum, and the
7 settling basin.

8 Q. And the separator?

9 A. Right.

10 Q. Would you have any reason to believe that Mr.
11 Leshner's observation of the condition of this ditch
12 would be inaccurate?

13 A. No. Because Mr. Leshner as well he's a
14 competent person also and I'm sure he would write what
15 he saw.

16 Q. Would the presence of tar in this ditch
17 indicate to you that the tar had not been successfully
18 separated out by the oil-water separator?

19 A. It would indicate one of two things. It
20 would indicate that the tar had not been successfully
21 settled. One of three things. It would indicate that
22 the tar had not been successfully settled out. Or it
23 would indicate that they allowed the tar to buildup too
24 high in the basin before they pumped it out. Or it
25 could be that the excess flood water across the basin

1 stirred it up and washed it down.

2 Q. How would allowing the tar to buildup too
3 high in the basin account for tar appearing in the
4 ditch past the basin?

5 A. Because if you allow it to buildup past a
6 certain point, your retention time is low and the flow
7 could carry some tar out with it.

8 Q. How much of the point would it have to
9 buildup before it would have a significant impact on
10 detention time? I believe you testified that the
11 settling basin was 10 feet deep.

12 A. I don't know. It's hard to say. I don't
13 know where the effluent pipe was located. I'd say with
14 that old design of that basin, oh, I hate to guess, but
15 I would say two feet would do it maybe.

16 Q. Do you have any information at this time the
17 tar was building up at the bottom of the oil-water
18 separator?

19 A. I don't have any information, no.

20 Q. Is there anything that you've seen or been
21 told that would lead you to believe that that was the
22 case?

23 A. There were some correspondence on maintenance
24 of the basin that indicated that the baffles were in
25 bad shape. But I wasn't involved in that. The plant

1 maintenance took care of that I believe.

2 Q. This was in around 1961?

3 A. I have no idea when it was, you know.

4 Q. Do you have any personal knowledge that the
5 baffles were taken care of by --

6 A. When I saw them they were all right. But
7 that was in the mid '50's, late '50's. I don't know
8 when this letter was written.

9 Q. Mr. Lesher testified it was written sometime
10 in 1961.

11 A. '61. Okay. I was the last time he was at
12 the plant was about '62 or '63. It seemed to me that I
13 looked at that basin and the baffles were all right.
14 That's about all I can tell you about them.

15 Q. Mr. Lesher says that, "With the overflow of
16 the area, water flow is naturally to the ditch
17 bypassing the basin." Does he mean that water flows
18 over the basin or how would --

19 A. It would have to be a pretty good flood to go
20 over the basin. It would have to be at least a foot
21 deep although I've seen it deeper than that. To go
22 over the basin required the water would have to be over
23 the road, would have to be more than a foot deep I
24 believe. But I've seen it that deep.

25 Q. So you're saying it would go around the basin?

1 A. Well, if it's less than a foot deep I think
2 it would go around the basin. Now, actually though
3 there are sumps at the end of the treating cylinder. I
4 don't know whether those sumps -- how high they were.
5 It's possible it could have gotten in there but I don't
6 know. I'm just not that familiar with the dimensional
7 details.

8 Q. Reading down to the second full paragraph on
9 page 5, State Exhibit Number 3, Mr. Leshar describes
10 the trenching system around the refinery as, "Quite
11 poor with broken and leaking pipes hidden under the
12 mess. They can't be found or repaired." Do you know
13 which trenching system he's referring to?

14 A. Well, around the refinery he would be talking
15 about the trenching system that was put in when the
16 plant was built in which I described to you how they
17 put the steam line around the oil lines and the tar
18 lines in the same trench so that they could keep them
19 warm. This is the way plants were built at that time.

20 Q. Which were the broken and leaking pipes that
21 Mr. Leshar is referring to?

22 A. I don't know.

23 Q. Do you recall any efforts by your department
24 at this time around 1961 to repair broken and leaking
25 pipes or oversee the plant's repair of broken and leaky

1 pipes in the refinery area at Saint Louis Park?

2 A. In the building there were, of course, when
3 we built the electrode pitch plant in the building
4 there were a lot of pipes replaced. But now in the
5 trenches Mr. Fenoglio went to the plant and he designed
6 a system whereby you could replace these pipes one at a
7 time and put them overhead. He was going to make
8 overhead supports and you could put the pipes overhead
9 one at a time.

10 Q. That wasn't accomplished till 1968, was it?

11 A. It wasn't completed until 1968, right.

12 Q. Did it take 7 years to do?

13 A. It must have. I don't know when he started,
14 when they started.

15 Q. Mr. Leshar says that, "The engineering
16 department needs to furnish an overall piping design or
17 layout." Do you recall an overall piping design or
18 layout being furnished by your department?

19 A. Yes. Mr. Fenoglio made one and I don't know
20 what year it was made. But he did make a layout. He
21 also made an estimate.

22 Q. I want to turn your attention back for a
23 moment because there may be a little confusion. When
24 you were talking about the effect of tar buildup in a
25 separator possibly effecting its efficacy, I believe

1 you used the figure two feet.

2 A. That was a guess, you know. You'd have to --

3 Q. What I understood you referring to is two
4 feet of tar or solid material on the bottom of the
5 oil-water separator.

6 A. That's what I was referring to, yes.

7 Q. Moving down a couple of paragraphs on State
8 Exhibit Number 3, Mr. Leshar refers to a refinery
9 ground tank problem which he says must also be solved.
10 Do you have any knowledge of the refinery ground tank
11 problem which Mr. Leshar was discussing?

12 A. Yes. Um-hum.

13 Q. What was your understanding of that problem?

14 A. My understanding is that the tanks floated
15 and the piping connections to the tanks started leaking.

16 Q. Mr. Leshar refers to water floating oil off
17 in wet weather. Is he referring there to oil floating
18 off of --

19 A. Where are you reading this now?

20 Q. That's in the same paragraph.

21 A. Same first paragraph?

22 Q. The paragraph --

23 MS. COMSTOCK: First paragraph under
24 section 3.

25 A. Okay.

1 Q. I'm sorry. For the record we're referring to
2 page 2 of State Exhibit Number 3, the second paragraph
3 above Roman numeral IV.

4 A. All right.

5 Q. Mr. Leshor describes water flooding as
6 floating oil off when he's discussing the ground tank
7 problem. Do you understand him there to be referring
8 to oil leaking from the ground tanks being floated off
9 by flooding water?

10 A. Since the oil is heavier than water it must
11 be light oil that is floating off. I got to stop and
12 think about this one. I think those tanks had a large
13 manhole which came up above the ground so you could get
14 down in them to clean them or whatever, any reason
15 getting into them as I remember them. Any water that
16 would get up against those manholes would float oil on
17 the manhole or float oil on the side of the manhole off.
18 Anywhere else? For instance, if they blew hot oil over
19 from a receiver in the refinery and you got hot oil in
20 these tanks, you'd get some vaporization of the oil in
21 the tank. There would be a lot of scrapers in there.
22 These scrapers would come up against the manhole cover
23 and they would condense and run down the side of the
24 manhole. Now, when you get water flooding the area, it
25 would wash all that oil off of there. Where else could

1 it be? Of course, if the pipe was broken -- not broken
2 but made to leak because it bent the tank bottom, if
3 oil came out of there I don't know whether water could
4 lift that oil up or not. Maybe it could. I don't know.

5 Q. Particularly if the water is rushing with
6 great force, flood waters, would it be able to lift
7 that oil up?

8 A. I don't know. It would certainly wash off
9 the manhole real good if it was rushing with great
10 force.

11 Q. Mr. Lesher goes on to state that, "These
12 ground tanks probably have interior leaks of unknown
13 size which are constantly losing oil." Would that be
14 feeding oil into the water which is floating the ground
15 tanks, flooding and then floating ground tanks?

16 A. These pipes are underground. I believe the
17 pipes discharge into the top of the tank. It could be
18 possible. I don't know. As I say, I never was in
19 these tanks but I know the oil entered the top of the
20 tank.

21 Q. What if the tanks themselves had these
22 interior leaks of unknown size?

23 A. Well, when the tanks floated they tended to
24 float -- the leak I believe occurred between the pipe
25 and the tank, the connection to the tank. I don't know

1 how far underground that connection was. I don't know
2 what cover those tanks had, whether they had one foot
3 or two feet or what it was. But the oil could have
4 been raised to the surface. I don't know.

5 Q. Do you have any reason to believe that Mr.
6 Lesher was inaccurate when he describes oil floating
7 off of the underground tanks in times of water flooding?

8 A. I don't know where he got that information,
9 whether he observed it or was told that. There again I
10 think Mr. Lesher was pretty careful about what he said.
11 I don't know.

12 Q. Do you have any reason to believe that Mr.
13 Lesher was inaccurate when he described interior leaks
14 of unknown size in the ground tanks?

15 A. He says they probably have interior leaks.
16 He didn't know himself. He was trying to account for
17 losing oil. This was one possibility. I don't think
18 he went down and looked either.

19 Q. I believe you testified earlier this week
20 that you were involved in a removal and repair process
21 for the ground tanks at Saint Louis Park.

22 A. Correct. I was involved. Indirectly but I
23 was involved.

24 Q. When the tanks were removed were they
25 examined for leaks?

1 A. Not by me, no. I never even saw them after
2 they were removed.

3 Q. Who did the actual physical removal?

4 A. Well, I don't know the contractor's name that
5 did the actual physical removal.

6 Q. But Mr. Finch arranged it and supervised?

7 A. Mr. Finch I believe arranged for the
8 contractor and Mr. Fenoglio was in and out of the plant
9 supervising for the engineering department.

10 Q. Were these tanks ever reused at Saint Louis
11 Park?

12 A. No, I'm sure they weren't. They were junked.

13 (At this time United States Deposition
14 Exhibit 13 was marked for identification by
15 the Court Reporter.)

16 BY MR. HIRD:

17 Q. For the record United States Exhibit 13 is a
18 two page document date stamped 304404 and 304405 and
19 appears to be a memorandum from H. L. Finch to H. R.
20 Horner dated February 26, 1962. Mr. Hennessy, have you
21 ever seen United States 13 before?

22 A. Well, I did not get a copy, but I know what
23 he's talking about. But whether I saw this
24 document or not I don't know.

25 Q. Does United States 13 appear to be a document

1 written by Mr. Finch in the course of his duties as
2 plant manager at --

3 A. Yes.

4 Q. -- Saint Louis Park?

5 A. Um-hum.

6 Q. If I could turn your attention first to the
7 second page of United States 13. Mr. Finch says he is
8 desirous of having a visit from the engineering
9 department, preferably Mr. Horner or yourself, Mr.
10 Hennessy, to discuss certain items, is that correct?

11 A. That's what it says, yes.

12 Q. The first of those items is removal of waste
13 water and filtering of waste water.

14 A. I don't know what he wants to remove it from.
15 I don't know.

16 Q. Did you ever visit the plant in and around
17 1962 to remove waste water or to consult with Mr. Finch
18 about the removal of waste water and the filtering of
19 waste water?

20 A. I'm sure Mr. Fenoglio visited the plant
21 because he did most of this work except for "D".

22 Q. If I can --

23 A. I don't know what "A" is. I'm sorry but I
24 can't shed any light. He says removal of waste water
25 and filtering of waste water. If he means by -- well,

1 straw filters were already in I believe. So I don't
2 know what he means. Anyway go ahead.

3 Q. Excuse me. Mr. Hennessy, you seem a little
4 bit tired. Would you like a break right now?

5 A. Okay. Let's do.

6 (At this time a recess was held.)

7 BY MR. HIRD:

8 Q. On the first page of United States 13 Mr.
9 Finch refers to problems with stills 9 through 12. And
10 he states that, "We are operating on a day-to-day
11 proposition and we consider the operation very
12 hazardous." Were you aware of any problems with stills
13 9 through 12 at this time which would make their
14 operation very hazardous?

15 A. Well, by hazardous I suppose he means that
16 they can leak. Those stills 9 through 12 back before
17 we replaced them with fire tube stills they were shell
18 stills and they were like a horizontal tank that was
19 all enclosed with refractory and there were burners.
20 You had a fire. I think they fired oil at that time.
21 They had an oil fire under the still and the heat went
22 through the shell and heated the tar, which boiled and
23 distilled. Now, when they got old the shell kept
24 getting thinner and thinner and then it would wrinkle
25 and the thing broke. Or if a still should develop a

1 leak, why, then you would get a fire under the still.
2 But from the tar burning you'd lose the tar plus the
3 fact you couldn't shut the fire off. But as far as the
4 tar getting out, it never got out into the firing oil
5 because of the way the refractory setting was built.

6 Q. Did you have any information other than
7 United States 13? You indicate at that time stills 9
8 through 12 were in danger of leaking.

9 A. That's a hard question to answer, but I don't
10 remember anyone telling me about it, but I knew they
11 were getting quite old and it was time to replace them.

12 Q. So they were about the age --

13 A. Yes.

14 Q. -- at which they would start leaking?

15 A. Um-hum.

16 Q. Would the tar that would have leaked through
17 those stills have runoff anywhere or would it all have
18 gone into the fire underneath?

19 A. It would have gone into the fire and burned
20 up and kept the still going.

21 Q. Could this problem lead potentially to
22 explosions at these stills?

23 A. It could. It's very rare, but it could lead
24 to explosions in the stills.

25 Q. Do you have any knowledge of any stills

1 exploding at Saint Louis Park?

2 A. No. Not at Saint Louis Park.

3 Q. Do you have any knowledge of any explosions
4 of any kind in any other part of Saint Louis Park?

5 A. They had an explosion in a pitch tank once.
6 I remember that.

7 Q. Could you describe that explosion to the best
8 of your knowledge?

9 A. Yes. The tank had hot pitch in and, of
10 course, distilled tar until you got down to the
11 softening point you wanted. Then you would -- I
12 explained how they blew the stills. They close the
13 vapor line and open the pitch line and the pitch then
14 would flow into the tank. At the end they put steam in
15 the still. This steam is super heated and blows the
16 line up into the tank. Well, one day one of the
17 operators opened the steam line to the pitch line to
18 make sure it was blown out but didn't blow it down
19 first.

20 By what I mean by that is when the steam line
21 is connected to the pitch line there are three valves.
22 There is a valve on the steam line. There is a "T" in
23 between the -- there is a valve on the pitch line and
24 between those two valves there is a "T" with a small
25 valve which is a telltale valve. What you do is you

1 keep the valve on the pitch line closed. You open the
2 telltale valve and you open the steam valve very slowly
3 and any water in the steam line coming down from above
4 is then discharged out the telltale. Okay. Then as
5 soon as the guy gets good, clean, dry steam he closes
6 that valve and opens the steam valve wide and he blows
7 the line out. No problem.

8 But on one occasion they got water -- I don't
9 know what happened, misoperation or what it was. But
10 for some reason they blew a slug of water over into the
11 pitch tank. Well, the pitch was in that tank at
12 anywhere from 400 to 500 degrees because at 400 degrees
13 is when we went to the pans. So it was hotter than 400
14 degrees F. So when you hit 400 degree pitch with water
15 it immediately flashes into steam. Steam occupies
16 about 1,000 times the volume of water. So the top of
17 the tank came off -- or not came off but ruptured. It
18 was an explosion.

19 Q. Do you have any idea of when this explosion
20 occurred?

21 A. In the late '50's or somewhere around in
22 there.

23 (At this time United States Deposition
24 Exhibit 14 was marked for identification by
25 the Court Reporter.)

1 THE WITNESS: I see it happened in '63
2 instead of late '50's. All right. I read it.

3 BY MR. HIRD:

4 Q. For the record United States 14 is a two page
5 document containing Reilly Tar date stamp pages numbers
6 223089 and 223090 and appears to be a memorandum by H.
7 L. Finch to R. J. Boyle dated April 17, 1963. Mr.
8 Hennessy, have you seen United States 14 before?

9 A. Seen this document before? Again I don't
10 remember it, but I'm sure I did. I must have.

11 Q. Does it appear to be a document prepared by
12 Mr. Finch when he was plant manager in the course of
13 his duties?

14 A. Yes, it is.

15 Q. Does United States 14 describe the pitch tank
16 explosion which you were just talking about a moment
17 ago?

18 A. I think what I was describing was the Granite
19 City explosion after reading this. I think that
20 explosion, and again I'm all mixed up with different
21 incidents, but I believe this explosion since there was
22 flame -- he says here that -- the reason it makes me
23 think it was not what I thought it was was he says
24 something about a flame coming out the top of the tank.
25 They called the fire department. All right. Now, when

1 you have a pitch tank and you clean it or a man's
2 inside the tank for any reason, you must have all wood
3 and rags, anything that has a low ignition point
4 removed from the tank because it's possible that the
5 hot pitch can ignite it. Now, it sounds to me like
6 what happened here just from reading this, I can't
7 remember the exact incident, but it sounds to me like
8 what happened is he -- they probably had a rag or a
9 piece of wood or something in there and they probably
10 put some hot pitch in the tank and the thing was
11 floating on top of the pitch and then when you get air
12 in the tank -- did he say it happened as soon as they
13 started blowing or what?

14 Q. Well, let's refer to the document.

15 A. Yes. All right. Okay. He was in the
16 process of -- okay. Now I think I am right. He was in
17 the process of drumming pitch for a Canadian order. It
18 was very high melting point pitch. It was 132 to 147
19 degrees C which is a very high -- that's a very hard
20 pitch, much harder than electrode pitch. So this means
21 that the pitch in the tank was very hot. Now, the fact
22 that he was drumming the pitch means he was pulling air
23 into the tank. Okay. Now, when you are pulling air
24 into the tank and you have any combustible material
25 with a low ignition point such as a rag or piece of

1 wood or something, the pitch is not enough to ignite
2 the wood or the rag or whatever it is. When this
3 happens you get an explosion. I mean, the scrapers
4 above the tank mix with air and burn. I mean, the rag
5 or the wood, whatever it is, could be smouldering in
6 there and when air mixes with the scrapers above the
7 pitch, why, it can be ignited. It must have been a
8 very low class explosion for that type of explosion
9 because it didn't even lift the top off the tank.

10 Q. Is your account of the explosion based on a
11 conversation with Mr. Finch about it?

12 A. My account of the explosion is just based on
13 the experience I've had in handling liquid pitch and
14 what causes explosions.

15 Q. So it's not based on specific facts?

16 A. No. There is no way. I can't remember that.
17 That's 20 years ago. I can't remember the specific
18 facts. I'm just giving you my opinion based on what he
19 says happened. The first thing I told you about the
20 steam, that must have been a different explosion
21 because when you have an explosion due to water
22 flashing the steam, you get no flame out the top of the
23 tank because there's nothing to burn.

24 Q. Do you recall talking with Mr. Finch about
25 this explosion?

1 A. I'm sure I talked with Mr. Finch about the
2 explosion. I don't recall it. But I must have talked
3 with him about it.

4 Q. Would this explosion as described by Mr.
5 Finch propel pitch or tar on the property grounds or
6 even off the property grounds?

7 A. Not off the property grounds, but it -- he
8 says that the bottom of the tank deformed and it lifted
9 the tank and it broke the valve and the pitch flowed
10 out the bottom of the tank. So obviously it did flow
11 on the ground.

12 Q. Would it be liquid pitch and would it
13 continue to flow?

14 A. It has a softening point at 132 degrees
15 centigrade which would be 200 almost 300 degrees F. So
16 it wouldn't go very far. It would set up like concrete.

17 Q. Do you recall any other explosions at Saint
18 Louis Park?

19 A. I thought they had a steam explosion in a
20 pitch tank, but I may have been thinking of this one.
21 I knew they had a pitch tank explosion. I can only
22 remember one explosion, but if someone would have asked
23 me what it was I would have said --

24 Q. Do you recall explosions anywhere else
25 besides the pitch tank at Saint Louis Park?

1 A. No, I can't recall any. No boiler explosions.

2 Q. When we were talking a few minutes ago about
3 the problems with the valves I guess between the pans
4 and the working tank, I think you mentioned that the
5 effect of that difficulty was that somebody who was
6 processing the production of tar wouldn't know which
7 particular tank, which particular cut, would wind up
8 going into --

9 A. That's right.

10 Q. So was there a way to tell after the fact
11 what was in a particular tank? In other words, after
12 this valve had not been working for awhile or did one
13 simply go on the impression of what one expected would
14 go into a particular tank?

15 A. Well, I think I can answer your question if I
16 understand it correctly.

17 Q. I may not have expressed it well.

18 A. I think I understand what you mean. The way
19 I understand your question you're asking me if various
20 say, for instance, if you put a second pan oil into the
21 third pan oil tank.

22 Q. Is there anyway to know that?

23 A. Could the guy tell it was second pan oil that
24 went in?

25 Q. Yeah.

1 A. I don't think so. I'll tell you why.
2 Because these oils are based on -- the first pan,
3 second pan, third pan oils are based on distillation
4 curves and on vapor pressures. Of course, the number 2
5 pan oil would have a different curve than number 3 pan
6 oil and so would number 1. But if you mixed larger
7 amount of number 2 with number 3 you could get the same
8 results as if you mixed a smaller amount of number 1
9 with number 3. Does that answer your question?

10 Q. Yes, I think it does.

11 A. In other words, the answer is no. But
12 without explaining it I don't think you'd understand it.

13 Q. Would that hold true for the wet cut as well?

14 A. Oh, sure. Sure. I think so.

15 Q. Could I ask you to look at Minnesota Exhibit
16 13. I believe you talked about this Exhibit a little
17 bit with Mr. Hinderaker, and if I go over the same
18 ground please forgive me. I'll try to avoid
19 duplication.

20 A. I read it.

21 Q. Did you receive this document, Minnesota 13?

22 A. It was written to me. I was the person it
23 was addressed to.

24 Q. Okay. Which lines was Mr. Finch referring to
25 when he discussed with you the idea of revamping lines

1 from the storage tanks to the refinery?

2 A. He's talking about the lines that were put in
3 trenches when the plant was built.

4 Q. What did he mean by revamping?

5 A. Well, he meant rebuild them to give him some
6 new lines.

7 Q. Had Mr. Finch requested several times that
8 these lines be revamped or improved?

9 A. Yes, I'm sure he did.

10 Q. When was this revamping actually accomplished?

11 A. Mr. Penoglio was there several times and he
12 revamped them a line at a time. As I say, he put up
13 the supports and he'd put up a line so that they didn't
14 shut down the whole refinery at once. But they were
15 revamped. When the job was completed I would guess
16 about '67 or something like that.

17 Q. You may have touched upon this next question
18 in your conversation with Mr. Hinderaker in which case
19 forgive me. How does the problem with these lines
20 effect the loss of inventory which is evidenced by
21 material being dumped to the settling basin?

22 A. Can you read that? Somebody put something in
23 longhand. I can't read it. Loss of inventory as a
24 result of leaks. That's what it says. Of undetermined
25 origin as evidence of material being pumped to our

1 settling basin. Well, the way I understand that is he
2 saw oil floating on the settling basin and I guess
3 after an investigation he could only determine that
4 there were leaks in lines causing it.

5 Q. But the leaks in the lines would naturally
6 flow -- excuse me. If there was a leak in a line, the
7 material that was leaked out of the line would
8 naturally would eventually flow down the tile to the
9 settling basin?

10 A. Yes. The trenches were concrete covered with
11 wood. It would flow down the trench to a sump and from
12 there it would flow through a tile to the sump at the
13 settling basin and be pumped to the settling basin.

14 Q. So if the tile was leaking, more tar or
15 product would wind up on its way to the settling basin
16 it would that it would have normally got to the
17 settling basins?

18 A. Yes. In these trenches it would have, um-hum.

19 Q. Do you have any reason to believe that Mr.
20 Finch is not accurate in his assessment that these
21 lines were leaking?

22 A. I have no reason to believe it, no.

23 Q. Did you ever see leaks in the lines yourself?

24 A. No. Because they were covered and I was
25 never there to work on that. I just never took the top

1 off the trench and inspected the lines. That would
2 have been a difficult thing to do anyway because the
3 lines were built in 19 -- early '20's and over the
4 years some of these lines were replaced by putting
5 other lines on top of them and it was getting to the
6 point where -- you've got to have room to work on a
7 pipeline. You can't just have them side by side and
8 work on them. Pretty soon it's just impossible to
9 maintain them.

10 Q. Is that why Mr. Finch says that he and his
11 plant staff were unable to determine the leaks, the
12 existence of a leak --

13 A. Yes.

14 Q. -- until they are a major problem? So you
15 would imagine that the plant would not be likely to
16 find these leaks without taking very unusual efforts to
17 look for them?

18 A. It would be very difficult.

19 Q. You mentioned that these lines had been
20 installed sometime in the early '20's. What would be
21 the useful life of these types of piping, of this type
22 of piping?

23 A. It would depend on what was going through the
24 line. Steam lines have a very long life. I don't know.

25 Q. What about product lines?

1 A. Product lines? Product lines would have
2 quite a bit shorter life. For instance, I think the
3 higher the cuts that boil at low temperature would be
4 more corrosive than cuts that boil at high temperature.
5 In other words, I would say that the water cut and the
6 first cut of oil would corrode lines faster than the
7 second or third cut of oil would. That's my opinion.

8 Q. When you said a shorter life, useful life,
9 would you mean something in the range of 20 years for
10 lines carrying product?

11 A. I know of lines much older than that carrying
12 product at some of our plants. But 20 or 25 years say,
13 something like that.

14 Q. Would be the useful life?

15 A. Um-hum.

16 Q. That's based on your experience as an
17 engineer in the refining industry?

18 A. Yes, um-hum. We don't actually do that. We
19 don't actually time a line and say, "Oh, this line's 30
20 years old. We better replace it." Where it's possible
21 we examine the line and see what kind of condition it's
22 in.

23 Q. Why would Mr. Finch be concerned in Minnesota
24 Exhibit Number 13 about the trenches being filled with
25 water approximately four months of the year and their

1 effect on the piping and the effect of that on the
2 piping?

3 A. If you remember there are several things I
4 told you how they built plants in around 1922. They
5 put the tar lines and the oil lines in trenches
6 underground and they ran the steam line through the
7 trench uninsulated and the heat from the steam line
8 heated the oil and tar lines so you could pump it.
9 Okay? Now, if you have such a construction and get the
10 trench under water, there is no way the steam line's
11 going to heat the tar and oil line and it's going to be
12 very difficult to pump. Plus the fact that up in
13 Minnesota the water in the trench would freeze and you
14 know what freezing water does to concrete trenches.

15 Q. It breaks the concrete?

16 A. It does the same thing that it does to
17 highways, yes. It lifts it or moves it and the
18 concrete breaks.

19 Q. Would the freezing of the water also have the
20 effect of increasing the likelihood of leaks and
21 ruptures in the product line?

22 A. Yes. Because the concrete trenches had
23 supports that supported the piping. And as the
24 trenches broke and moved, why, you might have one or
25 two of these supports one right after the other broken

1 and then the pipe would be very poorly supported and it
2 would have a huge sag between supports. This would be
3 very hard on it. Plus the fact that back in the '20's
4 when these lines were installed lines weren't welded.
5 They were screwed. Screwed fittings when you move them
6 they leak.

7 Q. So water in the trenches standing for four
8 months is likely to cause the product lines to rupture
9 and the concrete basin to crack?

10 A. I wouldn't say that it would rupture, but it
11 would cause the lines to leak and it would cause the
12 concrete trenches through which the lines are running
13 to crack, yes, and deform.

14 Q. So product could come through the leaks into
15 the trenches and could, in fact, come through the
16 trenches into the ground soil underneath the trenches?

17 A. Well, if there was a break in the floor of
18 the trench that could happen. See, the trenches had
19 two sides and a bottom and the top was wood.

20 Q. In item 5 in this list Mr. Finch says that,
21 "One of the reasons for revamping piping is to control
22 drainage and set an adequate filtering system." He
23 suggests that can only be achieved by the trenches being
24 eliminated. What do you understand he meant when he
25 was talking about setting up an adequate filtering

1 system?

2 A. That's what I mentioned before. I don't know
3 what he meant. The only thing I can think of is maybe
4 a second straw filter in his effluent. I can't think
5 of any way he'd filter the water from the trenches
6 going to the settling basin. I don't really know what
7 he meant. But if you ask me to guess, that's what I
8 would guess is he's talking about putting in another
9 straw filter.

10 Q. Do you think he could be referring to the
11 combination of the oil-water separator and the straw
12 filter when he uses the phrase "filtering system"?

13 A. Well, the oil-water separator does no
14 filtering. It's only settling.

15 Q. Mr. Hennessy, I'd like to show you now two
16 Exhibits together if you would. If you could look at
17 Minnesota 24 and I'd also like to show you a new
18 document together with that which I guess will become
19 United States 15.

20 (At this time United States Deposition
21 Exhibit 15 was marked for identification by
22 the Court Reporter.)

23 BY MR. HIRD:

24 Q. For the record, United States 15 is a one
25 page document, Reilly date stamp number 104308. It

1 appears to be a memorandum from R. J. Boyle to R. J.
2 Hennessy dated October 8, 1963. Mr. Hennessy, did you
3 receive United States 15?

4 A. I obviously did since it was addressed to me.

5 Q. I notice in United States 15 Mr. Boyle refers
6 to enclosing a photostat of a letter dated September
7 30th received from H. L. Finch. I'd ask you to take a
8 look at Minnesota 24 and ask you whether that was the
9 letter that Mr. Boyle is referring to and whether you
10 received a copy of it.

11 A. I did not receive a copy, but I'm sure I've
12 seen the letter before, yes.

13 Q. Are you sure you didn't receive a copy?
14 Because if you look closely at U.S. 15 Mr. Boyle says
15 that he sent a copy along.

16 A. All right. I had received a copy, obviously
17 received a copy attached to Mr. Boyle's letter. I did
18 not receive it from Mr. Finch. All right. I see.
19 Okay.

20 Q. In United States 15 Mr. Boyle asks you to
21 investigate a complaint of contaminated water made by a
22 Mr. Goldblatt, does he not?

23 A. He does.

24 Q. Did you investigate that complaint?

25 A. I didn't. I never talked with Mr. Goldblatt,

1 no.

2 Q. Who did you talk with about Mr. Goldblatt's
3 complaint?

4 A. Herb Finch and Bob Boyle. I'm sure those are
5 the two people I talked with.

6 Q. The Minnesota 24 refers to Mr. Goldblatt as
7 owning a piece of property just south of Highway number
8 7 to the south of Reilly's Saint Louis Park property.
9 Is that statement correct to your understanding?

10 A. It probably is correct. I can't say that
11 it's correct. But if Herb Finch says Mr. Goldblatt
12 owned that piece of property then I'm pretty sure he
13 owned it.

14 Q. What did Mr. Finch tell you when you talked
15 with him about Mr. Goldblatt's complaint about
16 contaminated water?

17 A. I can't remember. I think he said something
18 about black coating on the ground around Mr.
19 Goldblatt's building or whatever it was Mr. Goldblatt
20 had.

21 Q. Let me let you look at another document which
22 may help you refresh your memory. Could you turn,
23 please, to Minnesota Exhibit Number 82, please?

24 A. 82. All right. Let's see. I read it.

25 Q. Mr. Hennessy, do you recognize Minnesota

1 Exhibit Number 82 as a document which you wrote on or
2 about October 25, 1963?

3 A. Yes, um-hum.

4 Q. Is Minnesota 82 a reply to Mr. Boyle's letter
5 which is United States 15?

6 A. Yes, I'm sure it is.

7 Q. In the second paragraph of Minnesota 82 you
8 state that, "Mr. Goldblatt's property is located south
9 of Highway 7 and part of his land is a swamp." You
10 further state that, "The Reilly plant is north of
11 Highway 7 and the plant effluent runs under the highway
12 and around Mr. Goldblatt's property." Do you know any
13 reason why that statement of yours is not accurate?

14 A. I believe it's accurate.

15 Q. You further state going down another couple
16 paragraphs that, "During wet years such as 1962 the
17 runoff in the Reilly plant has flooded the swampy part
18 of Mr. Goldblatt's land." Is this based on information
19 told to you by Mr. Finch?

20 A. I called Mr. Herb Finch. It says this
21 information all came from Mr. Finch who is much more
22 familiar with Mr. Goldblatt's property than I was.

23 Q. Did Mr. Finch also tell you as you report
24 here that the receding waters left an oil residue which
25 colored the land black?

1 A. Yes. He obviously did.

2 Q. Did Mr. Finch further tell you that the land
3 was colored black or rather Mr. Goldblatt's land was
4 colored black when he purchased it around 1950?

5 A. Yes, obviously, um-hum.

6 Q. You have no reason to doubt the accuracy of
7 those statements?

8 A. No.

9 Q. You then go on to say that, "Runoff water
10 floods our settling basins stirring up the oil and
11 washing it downstream from the plant." Is this
12 statement based on your observation as well as
13 information from Mr. Finch and others?

14 A. I have seen this happen, yes.

15 Q. This is an accurate statement?

16 A. I believe that -- oh, yes, this is an
17 accurate statement.

18 Q. What did you mean by a wet year?

19 A. That's a good question. One that had a lot
20 of rain I guess or a lot of surface water.

21 Q. What kind of rainfall? Can you put an
22 estimate on it?

23 A. It's hard to say. I don't know anything
24 about rainfall in Saint Louis Park, but it would be
25 enough rain to cause a large flow from the runoff water

1 on Louisiana Street down to our plant. That's all I
2 can say. How much rain that would require I don't know

3 Q. But you would regard 1962 as a wet year?

4 A. '63.

5 Q. I think you refer to '62 in the letter.

6 A. Okay. "During times of wet years such as '62.
7 If I said it I obviously thought it at the time I wrote
8 the letter that that was a wet year. I can't remember
9 it. All right.

10 Q. When you said that runoff water floods the
11 settling basin, do you mean that the water runs
12 directly into the basin and carries the oil out of the
13 basin and into the ditch?

14 A. Well, it has at times completely covered the
15 basin. You couldn't see the basin in which case it
16 would do that. Other times it just flooded the
17 trenches and ran in that way.

18 Q. Do you know whether the extension on
19 Louisiana Avenue was in existence around 1950?

20 A. 1950?

21 Q. Yes.

22 A. No, I don't. I'm sure that some of these
23 papers you have would give you that date though.

24 Q. Actually I haven't found it yet.

25 A. You haven't? Well it should be in there

1 somewhere because we sold them some land to put the
2 street through.

3 Q. You state in State Exhibit Number 82 that the
4 quantity of runoff is considerable. By what volume or
5 volume range did you mean when you used the words
6 "considerable"?

7 A. Enough to cause flooding. That's
8 considerable.

9 Q. You then refer to a suggestion made by Mr. P.
10 C. Reilly. Is this Mr. P. C. Reilly, senior, or Mr. P.
11 C. Reilly, junior?

12 A. This is P. C. Reilly, junior, because Mr. P.
13 C. Reilly, senior, died in 1952.

14 Q. What was Mr. P. C. Reilly, junior's, position
15 at the time that you wrote Minnesota Exhibit 82?

16 A. His suggestion was to --

17 Q. I'm sorry. What was his position?

18 A. Oh, in the company?

19 Q. In the company.

20 A. I do not know whether he was president,
21 whether he was chairman of the board. He was very high
22 in the management, but what his position was in '63 I
23 can't remember because he's held several positions.

24 Q. Would he have been the highest individual in
25 the management at that time?

1 A. I would say yes.

2 Q. Now, what was Mr. P. C. Reilly's suggestion
3 then to open up the question that you started to answer?

4 A. His suggestion was to divert water being
5 dumped by the village onto our plant property by
6 building a big ditch around the west side and south
7 side of the plant.

8 Q. How would that suggestion be intended to
9 solve the problem created by runoff?

10 A. It would take -- well, if you built a large
11 ditch as he suggested, he was suggesting a ditch big
12 enough to handle all the runoff that came out of this
13 pipe. That would prevent the water from running across
14 our property. It would prevent the water from the west
15 side of the plant from running across our property
16 which is the water closest to our manufacturing area.

17 Q. That suggestion is described at length in the
18 fifth paragraph of State Exhibit Number 82?

19 A. That is his suggestion.

20 MR. HINDERAKER: Mr. Hennessy, you said
21 the west side. Did you mean the west side or the east
22 side?

23 THE WITNESS: I mean the east side.
24 You're correct. Thank you.

25 MR. HIRD: Thank you, Mr. Hinderaker.

1 BY MR. HIRD:

2 Q. Did he make this suggestion to you personally
3 at any time?

4 A. He made the suggestion to me personally, but
5 whether or not he wrote a letter or not I don't know.
6 But, yes, it was his suggestion.

7 Q. And you remember him making it to you?

8 A. Yes. Yes.

9 Q. At the end of the fifth paragraph in
10 Minnesota Exhibit Number 82 you say, "I believe this
11 work alone could solve the problem of flooding our
12 settling basin and it should be done first and the
13 result observed." Were you agreeing with Mr. Reilly
14 that this suggestion should be implemented?

15 A. No. I was agreeing with Mr. Reilly that if
16 it were implemented it might solve the problem.

17 Q. Did you render any advice to Mr. Reilly about
18 whether this suggestion should be implemented?

19 A. There again this has to go on memory.
20 Probably what I did is -- I can't remember doing it.
21 But probably what I did I either prepared or had
22 someone prepare an estimate for doing the work.

23 Q. When did you recommend that this work be done?

24 A. I can't remember.

25 Q. Would you remember -- I'm sorry.

1 A. I said I gave my opinion here in the last
2 sentence or the last sentence of this paragraph. "I
3 believe this work alone may solve the problem."

4 Q. So you think that if implemented it would
5 work?

6 A. It had a chance of working. Then I said, "If
7 after this work is completed our own runoff water
8 continues to flood the settling basin, it may be
9 necessary to build a small concrete basin."

10 Q. Leaving off the last paragraph of the page
11 for a moment, did you recommend that Mr. Reilly's
12 suggestion be implemented as a potentially effective
13 way of solving the problem created by runoff?

14 A. It sounds like I agreed with him. "I believe
15 this work alone may solve the problem," I said. But I
16 can't remember why it was never done. I think I know
17 why it wasn't done, but I can't prove it.

18 Q. Why do you think it wasn't done?

19 A. I think what happened was either me or
20 someone under my direction prepared an estimate for
21 doing the work and when they saw what was involved -- I
22 don't believe Mr. Reilly realized what was involved in
23 carrying out this suggestion.

24 Q. What was involved in carrying out the
25 suggestion that Mr. Reilly was not aware of?

1 A. Well, we had to go through Wheeler Lumber
2 Bridge and Supplies wood machining plant. We had to
3 bypass their main building. We had to go under our
4 railroad track with a big trench or our inlet tracks.
5 All the railroad tracks in the plant came in one
6 entrance. We had to go under our road right where the
7 scale was. It would have been something that could be
8 done, but it would have been very expensive.

9 Q. In about what range?

10 A. Oh, gosh, I don't remember. Even a small
11 railroad bridge -- it would be very expensive and it
12 would be difficult to do. It could have been done.
13 Let me put it this way, it would have been a big
14 project. Say dig a trench around the plant it sounds
15 simple. It wasn't. Believe me, it wouldn't have been
16 simple.

17 Q. But to the best of your recollection the
18 reason why it wasn't done was because of the cost?

19 A. I think that's correct.

20 Q. Let me turn your --

21 (At this time a discussion was held
22 off the record.)

23 BY MR. HIRD:

24 Q. In the last paragraph on the first page of
25 Minnesota Exhibit 62 you propose an alternate

1 suggestion if Mr. Reilly's suggestion is not effective,
2 is that correct?

3 A. That's correct.

4 Q. Is that alternate suggestion to construct a
5 small concrete basin similar to the Cleveland basin but
6 high to prevent flooding like Maywood's, is that
7 correct?

8 A. That is correct, yes. What? Maywood's built
9 high to prevent flooding. That should have been like
10 Saint Louis Park. Maywood's never flooded. That was
11 high. It's a mistake.

12 Q. I think what you're talking here, and I may
13 be wrong, is a suggestion of an alternative.

14 A. But built high. It's poorly worded. It
15 should have read, "But built high like Maywood's to
16 prevent flooding."

17 Q. But the new settling basin that you were
18 proposing here would be a concrete basin similar to
19 that in Cleveland and would be a high basin similar in
20 that respect to the one that had been constructed in
21 Maywood?

22 A. That is correct. That's the idea.

23 Q. Why would it be important to build a concrete
24 basin similar to the one in Cleveland? What was
25 distinct about the Cleveland basin?

1 A. The Cleveland basin' handled I think -- well,
2 it handled more water than the Saint Louis Park basin.
3 But that type of basin it was very effective, and I
4 wasn't recommending that we just copy exactly what
5 Cleveland had but to base the design on the Cleveland
6 basin which was a very successful basin which worked
7 very well.

8 Q. Cleveland had an API?

9 A. API type basin, yes.

10 Q. When you say a larger basin existed at
11 Cleveland, do you mean it was able to handle a greater
12 flow of water than the Saint Louis Park basin?

13 A. Yes. Because the Cleveland plant was a much
14 larger plant than the Saint Louis Park plant as far as
15 production. It's a tar plant. It handled -- in fact,
16 I believe Cleveland is our largest tar plant. I know
17 it is. It was then too.

18 Q. Why did you suggest a concrete basin be
19 installed rather than a wooden one that was already at
20 Saint Louis Park?

21 A. Well, if you're going to set it up above the
22 ground, it's not too difficult to built a concrete
23 basin. I just thought it was the best material to make
24 it out of. That's all. For a built-in-place basin.

25 Q. Why wouldn't a wooden basin be not as good?

1 A. A wooden basin would be all right. A tongue
2 and groove wooden basin. Of course, the original wood
3 basin was built underground -- not underground but just
4 so the top was a foot above ground. It would -- you
5 asked me why it's better. Well, it would be easier to
6 build a wood basin underground. Of course, this was in
7 '42 when it was built too. But if you get above ground
8 where you can get to your forms and don't have to dig a
9 huge hole to put the basin in, I believe concrete would
10 have been better. Does that answer the question?

11 Q. Yes, it does. Thank you. When you say a
12 small concrete basin similar to Cleveland, do you mean
13 one as big as Cleveland or one along the Cleveland
14 design but smaller than the one that was installed at
15 Cleveland?

16 A. The basin would have been built for Saint
17 Louis Park and it would have been completely designed.
18 It would not have been a copy of the Cleveland basin.
19 And however that design came out, that's what we would
20 build. If it was as big as the Cleveland basin, we
21 would have made it that big. If it came out smaller,
22 we would have made it smaller. My opinion is it would
23 have come out smaller.

24 Q. You mention that the basin should be built
25 high to prevent floodings like Maywood. How high above

4
1 the ground did the Maywood basin rise?

2 A. If you stand on the ground and look across
3 the basin you'll see nothing but concrete wall. So
4 that means the top of the basin at Maywood is at least
5 6 feet above the ground.

6 Q. The Saint Louis Park basin was one foot above
7 the ground?

8 A. About that, yes.

9 Q. So you were suggesting that the new basin
10 extend 6 feet above the ground?

11 A. Well, --

12 Q. The new basin that you were proposing at
13 Saint Louis Park.

14 A. I don't know about 6 feet, but that would
15 have been high enough I'm sure.

16 Q. But in that range?

17 A. In that range, yes, um-hum.

18 MR. HIRD: Off the record.

19 (At this time a recess was held.)

20 MR. HIRD: Could you read the last
21 question?

22 (At this time the requested portion of
23 the record was read aloud by the Court
24 Reporter.)

25 BY MR. HIRD:

1 Q. Why don't we go back on the record and
2 clarify that since we seemed to have been talking over
3 each other, Mr. Hennessy. As I understand your
4 testimony, it was that in Minnesota Exhibit Number 82
5 you were proposing in the final paragraph of page 1
6 that a basin built high to prevent flooding like
7 Maywood's be built at Saint Louis Park. And by high
8 like Maywood's you meant that the basin would be in the
9 range of 6 feet above the ground such as Maywood's was
10 6 feet above the ground?

11 A. Maywood's I would guess was 6 feet above the
12 ground. But what I meant was the basin should be high
13 enough so no flood water could get into it.

14 Q. Was Maywood's of 6 feet high enough so that
15 no flood water could get into it?

16 A. Oh, yes. You'd flood the whole area that
17 high.

18 Q. 6 feet above the ground would be high enough
19 so that no flood water would get into it?

20 A. At Maywood, yes.

21 Q. A height that would be high enough so that no
22 flood water would get into it would be closer to 6 feet
23 than the one foot that the --

24 A. Oh, no.

25 Q. -- St. Louis Park's basin was?

1 A. I didn't say that. The one foot wasn't high
2 enough. But how high it would have to be at Saint
3 Louis Park I don't know. I'm sure it wouldn't have to
4 be 6 feet. All I meant to say -- and this letter
5 doesn't give a figure. All it says is build it high
6 enough so it won't be flooded.

7 Q. But higher than the one foot basin?

8 A. Oh, yes, because it did get flooded.

9 Q. I think we may run into the same problem with
10 the record again because of our talking over each other.
11 So let me repeat that question. But higher than the
12 one foot that this -- let me start from the beginning.
13 What you are suggesting in Minnesota Exhibit 82 is that
14 the basin you're proposing be built higher than the one
15 foot high basin that was already in existence at Saint
16 Louis Park?

17 A. That is correct, yes.

18 Q. You go on further to state that water from
19 the plant should be pumped through the settling basin.
20 Was water at the Saint Louis Park plant not pumped
21 through the oil-water settling basin that existed there.

22 A. Well, water from the plant obviously means
23 water that's going to be treated in the basin,
24 contaminated effluent and it was pumped through the
25 basin.

1 Q. Do you mean, however, by the phrase, "Water
2 from the plant should be pumped through the settling
3 basin," used in State Exhibit Number 82 that runoff
4 water as well should be pumped through the settling
5 basin or should be --

6 A. Only the rain water that falls in this small
7 area that drained into the settling basin.

8 Q. You then go on in describing the proposed
9 basin in State Exhibit 82 to say, "A concrete basin
10 should have a hopper bottom as the installation at
11 Cleveland so heavy oils may be more easily removed by a
12 sludge pump." Was there difficulty in removing heavy
13 oils from the bottom of the basin at Saint Louis Park?

14 A. Well, we discussed that before. I don't
15 remember what, as I said before, I don't remember what
16 kind of a pump they had. But I believe they had a
17 steam pump. They had a line going down into the basin
18 and where this line ended I don't know. It probably
19 ended maybe 6 inches or so off the bottom. They would
20 start to steam pump and pump the oil out. Then when it
21 got down to that level, water would then be pumped in,
22 would flow into the pump.

23 Q. So the design of the pump was to start
24 pumping at about 6 inches off the bottom at Saint Louis
25 Park?

1 A. It could pump down to about 6 inches or so.
2 I don't know what the distance was. But very close to
3 the bottom.

4 Q. That was not as effective a pump as the
5 sludge pump that was used at Cleveland?

6 A. The pump was as effective, but the one at
7 Cleveland had a hopper bottom into which the oil would
8 flow and you could pump the oil out without having
9 water break through. In other words, you didn't even
10 have to pump all the oil out. You could start to pump
11 when the oil was below the bottom of the basin but
12 still three feet above the inlet pipe you could start
13 pumping. Then when it got down within one foot of the
14 inlet pipe you could quit.

15 Q. So with the Cleveland settling basin it was
16 easier to pump out sludge that might collect at the
17 bottom than it was at the Saint Louis Park settling
18 basin?

19 A. Easier? I don't know about easier but it was
20 more accurate.

21 Q. It was more effective?

22 A. More effective, let's put it that way.

23 Q. So it was more effective to pump out sludge
24 through the hopper system at the Cleveland plant
25 separator than it was at the Saint Louis Park separator?

1 A. Correct.

2 Q. That is why you proposed that this new
3 separator might be installed at Saint Louis Park have a
4 hopper bottom?

5 A. Right.

6 Q. You further propose that runoff water should
7 not run through the new settling basin that you suggest
8 had been installed at Saint Louis Park.

9 A. That is correct.

10 Q. Let me ask you was the settling basin which
11 you proposed in the final paragraph of page 1 of State
12 Exhibit 82 ever installed at Saint Louis Park?

13 A. It was not, no.

14 Q. Would it have been an expensive proposition
15 to install that?

16 A. It would not have been inexpensive.

17 Q. Why was the settling basin not installed at
18 Saint Louis Park?

19 A. I don't remember.

20 Q. Who would have made the decision to install
21 it or not?

22 A. I don't remember whether I got overruled by
23 Mr. Horner or whether we made an estimate and the
24 finance committee said no or whether the plant was
25 afraid they would have to close down anyway and they

4:
1 didn't want to get started on it. I can't give you a
2 reason. I don't know.

3 Q. Did anyone besides you support the concept of
4 installing a new settling basin at Saint Louis Park at
5 this time?

6 A. I don't remember.

7 Q. Do you recall whether there was any further
8 discussion of this proposal in the final paragraph of
9 the first page of State Exhibit 82 after you wrote --

10 A. No, I don't recall.

11 Q. -- the document? Do you recall whether there
12 was any consideration around this time about building a
13 tank that might exit just before the separator to catch
14 water that might overflow the separator or building a
15 lagoon just before the separator?

16 A. I don't recall that at all.

17 Q. Can you think of any other ways besides the
18 two mentioned here to avoid runoff water running into
19 the oil and water separator?

20 A. If you're going to have a major flood, I
21 think the most positive thing you can do is have an
22 elevated waste water separator.

23 Q. So that would be the most effective way?

24 A. I think so.

25 Q. Could one have built an elevated segment onto

1 the already existing oil-water separator at Saint Louis
2 Park?

3 A. That's an interesting concept. But I don't
4 think that was ever discussed. If you're asking if
5 they could --

6 Q. Is it possible as a matter of engineering?

7 A. It's possible but I don't think it would be
8 too good of engineering to do it.

9 Q. Why would it not be good engineering to do it?

10 A. Well, in the first place your basin would be
11 terribly deep. Unless you built a sump beside it down
12 below the level of the old basin you'd have trouble
13 pumping the heavy oil out I think.

14 Q. Would it be expensive to do?

15 A. I think it would be every bit as expensive as
16 building a new basin.

17 Q. I'd like you to turn now to Minnesota Exhibit
18 Number 48, please. Mr. Hennessy, I notice that you
19 were carbon copied on the bottom of Minnesota 48. Did
20 you receive a copy of this document?

21 A. I obviously did, but again I can't remember,
22 but if my name is on it, I probably received it. Do
23 you want me to read the document?

24 Q. Of course. By all means. Mr. Hennessy, in
25 Minnesota 48 Mr. Boyle refers to the problem of

4
1 contaminants at the Cleveland plant, does he not?

2 A. You're on 48?

3 Q. Yes. I suggest you look at the last
4 paragraph.

5 A. All right. Okay. Um-hum.

6 Q. What's your understanding of what problem of
7 contaminants Mr. Boyle was referring to at the
8 Cleveland plant?

9 A. There again '65, that's a long time ago. I
10 believe the problem was oil, phenol and temperature at
11 Cleveland.

12 Q. Were those contaminants in the effluent
13 leaving the Cleveland plant?

14 A. They were in the effluent going to the city
15 sewer.

16 Q. Mr. Boyle mentioned that this problem of
17 contaminants has been pretty well solved at the
18 Cleveland plant. What is your understanding about how
19 the problem of contaminants were pretty well solved at
20 Cleveland?

21 A. We put in a separating basin which satisfied
22 the city but they were unhappy with our temperature.
23 We put in a cooling tower, knocked the temperature down.
24 They were satisfied and they let us into the sewer.

25 Q. Is this basin that you put into the Cleveland

1 plant an API style separator?

2 A. Yes.

3 Q. Was this the basin that you were referring to
4 when you described a basin similar to Cleveland's in
5 State Exhibit 82?

6 A. Yes.

7 Q. Mr. Boyle's view was that the installation of
8 that basin pretty well solved the problem of
9 contaminants at Cleveland Park. Did you agree with
10 that assessment, I mean at the Cleveland plant?

11 A. I would have to agree with it because the
12 city of Cleveland accepted our effluent and we went
13 into the sewer and we had no more problem.

14 Q. Is your understanding that Mr. Boyle was
15 suggesting in Minnesota 48 that an API style separator
16 like that installed at the Cleveland plant be installed
17 at Saint Louis Park?

18 A. Yes.

19 Q. Would you agree with Mr. Boyle that the
20 installation of that type of facility could go far in
21 solving the contaminant problem at Saint Louis Park?

22 A. I think it would go far, yes.

23 (At this time a discussion was held
24 off the record.)

25 BY MR. HIRD:

1 Q. Let the record reflect that Miss Comstock
2 consulted with Mr. Hennessy. Mr. Hennessy, Mr. Boyle
3 in Minnesota Exhibit 48 appears to ask you to comment
4 on this problem, this phase of the problem. Do you
5 recall commenting on the problem in response to
6 Minnesota 48?

7 A. I don't recall it. I probably commented but
8 what my comment was I can't recall.

9 Q. Was Mr. Boyle's suggestion that a Cleveland
10 style API separator be installed in the Saint Louis
11 Park plant ever acted upon?

12 A. No. It was never installed. It was acted
13 upon but never installed.

14 Q. Never installed. Isn't this the same
15 suggestion that you yourself made two years earlier in
16 Minnesota 13, that a Cleveland style separator be
17 installed -- I'm sorry. Not Minnesota 13. Forgive me.
18 My documents are wrong. Isn't this the same suggestion
19 that you make two years earlier in Minnesota 82 that a
20 Cleveland style separator be installed at Saint Louis
21 Park? I'm sorry. I was referring to Minnesota 82.

22 A. Yes. That is the same suggestion.

23 (At this time United States Deposition
24 Exhibit 16 was marked for identification by
25 the Court Reporter.)

1 BY MR. HIRD:

2 Q. For the record United States 16 is a one page
3 document, Reilly date stamp number 100255 and appears
4 to be a memorandum on Reilly Tar and Chemical
5 Corporation stationery from P. E. White to T. E. Reilly
6 dated September 7, 1966. Mr. Hennessy, I notice that
7 you are carbon copied at the bottom of United States 16.
8 Did you receive a copy of United States 16?

9 A. I obviously did.

10 Q. Who was Mr. White, the author of United
11 States 16?

12 A. Mr. White was the plant engineer at Saint
13 Louis Park.

14 Q. In the course of United States 16 Mr. White
15 refers to a pump that drains 60 to 70 percent of the
16 plant waste and surface water. What pump is Mr. White
17 referring to?

18 A. I read the paragraph and I'm a little
19 confused. I think he's referring to two separate pumps.

20 Q. All right. Could you try to unravel yours
21 and perhaps our confusion?

22 A. Okay. He's talking about in the event of a
23 heavy rain he has a gasoline pump to pump what he calls
24 waste water away from the incisor building and the
25 adzing and boring mill. That's one pump. The other

1 pump is -- well, let's see. Maybe I'm wrong. Maybe
2 he's just talking about the pump that pumps rain water.
3 But he's a little bit careless with his words if he is.

4 Q. Let me ask you if you're reading -- let me
5 tell you my reading of the document and see if you
6 agree with me.

7 A. Okay.

8 Q. The way I understand the document Mr. White
9 is referring first to a pump that is in operation at
10 the plant and then later turns his attention to a
11 replacement pump or a second pump that should be bought
12 to replace the first pump and is requesting assistance
13 in acquiring that second pump. Would that be
14 consistent with your reading of the document?

15 A. When I first read the document I thought
16 there were two pumps. But now after I read it over I'm
17 beginning to think that there is only one pump. I
18 think he's talking about a portable pump to pump rain
19 water away from buildings and in the tie yard.

20 Q. What does he mean then about that one pump
21 draining 60 to 70 percent of the plant waste?

22 A. Well, he says plant waste and surface water.
23 That's what confused me. Because I don't think this
24 pump ever pumped plant waste. I don't know how -- I
25 think it's just pumped surface water off the ground.

1 That was the only plant waste that went through the tile
2 yard was effluent from the settling basin except if he
3 wants to call rain water washing across the yard as
4 waste. But I wouldn't call it that. That's why I say
5 his terminology has confused me. It's been so long. I
6 just don't remember.

7 Q. Is it your knowledge that at this time,
8 September 1966, there was one pump at the Reilly
9 facility at Saint Louis Park which pumped rain water
10 out of the yard?

11 A. I won't say there was one pump, but there was
12 a pump or pumps, portable pumps, to pump rain water out
13 of various parts of the yard.

14 Q. I'd like to turn your attention to the last
15 sentence of the second paragraph. Do you understand
16 that sentence referring to Mr. White's interest in
17 acquiring the new pump to replace the pump that may
18 already be in use?

19 A. The way I read it now after reading it over
20 again I believe he wants to replace his portable pump.
21 He wants to have one that -- that's it. He wanted me
22 to make an estimate. That's what I would say the
23 letter says.

24 Q. That he wants you to assist him in purchasing
25 a new pump to replace the one that he has now or that

1 he had at that time?

2 A. Okay. What he says is, "Mr. Hennessey also
3 agrees that we need to get the pump soon as possible
4 and ask that we send the work order directly to you for
5 approval." All right. He's trying to save time. What
6 he's doing instead of sending a work order request to
7 me he is sending it directly to Mr. T. E. Reilly. He's
8 bypassing me but he's letting me know it. I mean not
9 that. -- I say bypassing. He's just trying to speed the
10 job up.

11 Q. But he's trying to buy a new pump?

12 A. He's trying to buy a new portable pump,
13 gasoline pump.

14 Q. Is it your understanding that the reason why
15 he thinks a new portable pump is necessary is because
16 the one that was then in use was not effective in
17 eliminating the rain water from the property?

18 A. Yes.

19 Q. Independently of this document do you recall
20 Mr. White's request for a new pump?

21 A. I can't recall anything about a portable pump
22 If I hadn't seen this document -- you asked if I
23 advised about a portable pump. I have said no because
24 I have no memory of it at all.

25 Q. Do you recall any criticism of the pump that

1 was in use at the Saint Louis Park facility at that
2 time?

3 A. The only criticism I can see is this one here
4 that says it's worn out and it's too small. He wants a
5 bigger one and a new one.

6 Q. But do you recall anyone else telling you --

7 A. No.

8 Q. -- that that pump was inadequate?

9 A. No. I can't remember.

10 Q. Could a bigger pump than the one described as
11 being in use at the Saint Louis Park property have more
12 effectively pumped out the rain water at the property?

13 A. Well, obviously the bigger the pump, the more
14 effective it would be. There was such a tremendous
15 quantity of flood waters he must be talking about a
16 good heavy rain. That's all I can think of.

17 Q. But could a bigger pump have been much more
18 effective in cleaning out the rain water?

19 A. It would be more effective. If the plant
20 wasn't flooded it would be more effective, yes. As I
21 explained to you before, our customers would complain
22 bitterly if we had water standing under the piles that
23 were being seasoned. You can see why. So we had to
24 pump all those puddles when the plant good flooded and
25 then the water receded, we had to pump all those

1 puddles out from under the tie piles. I think that's
2 what he's talking about. He also mentioned that. He
3 mentioned the tie yard. He couldn't even work in the
4 tie yard he says. And he mentioned that the adzing and
5 boring mill and incising building were flooded with
6 water.

7 Q. Did you ever see the pump that was in use at
8 Saint Louis Park?

9 A. No. I would never have paid attention to a
10 portable pump unless I had a reason to.

11 Q. What is the capacity of a portable pump? Is
12 it basically a very small type of pump?

13 A. Oh, no. No. You can get -- contractors use
14 them for digging foundations in heavy rain or something.
15 Water washes in the foundation and they pump it out
16 with a gasoline pump. Some of them can be quite large.

17 Q. Do you have any sense of the size of the pump
18 that was in use --

19 A. No, I don't.

20 Q. -- at this time?

21 A. He doesn't say.

22 Q. While this new Exhibit is being extracted let
23 me ask you do you have any knowledge whether the pump
24 that Mr. White requested was ever purchased?

25 A. I can't even remember the pumps much less

1 tell you whether they were purchased or not.

2 Q. If it was purchased, who would have decided
3 to purchase the pump or not? Would it have been Mr. T.
4 E. Reilly?

5 A. He could not purchase the pump without an
6 authorization. I assume Mr. T. E. Reilly would have
7 had quite a bit to do with authorizing it because his
8 name's on the letter. That's who the letter is written
9 to.

10 Q. All right.

11 (At this time United States Deposition
12 Exhibit 17 was marked for identification by
13 the Court Reporter.)

14 BY MR. HIRD:

15 Q. For the record United States Exhibit Number
16 17 is a two page document. Reilly date stamp numbers
17 223497 and 223498. It appears to be a memorandum from
18 P. E. White to R. J. Boyle on Reilly Tar and Chemical
19 Corporation stationery, dated October 5, 1966. Mr.
20 Hennessy, I notice that you are carbon copied on the
21 bottom of United States 17. Did you receive a copy of
22 United States 17?

23 A. Again I don't remember it, but I obviously
24 did.

25 Q. Mr. Hennessy, earlier on you testified that

1 you could recall only one explosion at Saint Louis Park.

2 A. Correct.

3 Q. Does United States 17 refresh your
4 recollection?

5 A. Evidently the explosion I described which I
6 thought happened at Saint Louis Park is this explosion.

7 Q. So you recall now at least two explosions --

8 A. Yes.

9 Q. -- at Saint Louis Park?

10 A. I didn't remember the one where the guy had
11 fire, that first explosion we talked about I didn't
12 remember that but this one I remember.

13 MR. HINDERAKER: Mr. Hennessy, is this
14 the explosion that earlier you thought may have
15 happened at Granite City?

16 THE WITNESS: Yes.

17 BY MR. HIRD:

18 Q. Based on your review of United States 17 and
19 your knowledge of the explosions, is there any way that
20 tar from the exploded tank could have found its way
21 onto the property ground?

22 A. This pitch was 350 degrees C. I don't know.
23 what the melt or softening point of it was. But it
24 says softening point -- oh, no. He says softening
25 point of pitch to customer's specifications the

1 temperature in the tank would be as high as 350. That
2 means the softening point was about 350. So at those
3 temperatures there is no way there is any tar in that
4 pitch. All distillate has been taken off.

5 Q. However, would the exploded pitch have been
6 propelled from the tank onto the ground in the area
7 around the pitch --

8 A. There probably was some pitch on the ground,
9 yes.

10 Q. About how much would one likely find in this
11 sort of an explosion, how much pitch on the ground?

12 A. I don't know. It would be enough to color
13 the ground black around the tank.

14 Q. Mr. Hennessy, I'd like you to take a look now
15 at Minnesota Exhibit 30, please.

16 A. Okay.

17 Q. Mr. Hennessy, did you receive a copy of
18 Minnesota 30 on or about the date of its creation?

19 A. I obviously did. My name is on the letter.

20 Q. Okay. In the opening paragraph of Minnesota
21 30 Mr. Finch refers to pipelines in trenches in the
22 Saint Louis Park refinery. Are these the trenches that
23 ran across the refinery that we've discussed earlier
24 today?

25 A. Yes.

1 Q. Were these the same trenches that had a
2 tendency to fill up with water for four months at a
3 time?

4 A. Yes.

5 Q. These were the same pipes in the trenches
6 that Mr. Finch had expressed some concern about
7 possible leaking?

8 A. Yes, um-hum.

9 Q. Mr. Finch refers in the second paragraph to
10 sediment having built up in the trenches so that leaks
11 are virtually impossible to locate. Do you recall Mr.
12 Finch ever discussing sediment building up in the
13 trenches?

14 A. I believe I recall that, yes.

15 Q. Do you have any reason to doubt Mr. Finch's
16 accuracy about sediment building up in the trenches?

17 A. No.

18 Q. Isn't it true that the only cause of the
19 sediment in the trenches could be product leaking from
20 the pipelines in the trenches?

21 A. No, not at all.

22 Q. What other --

23 A. Clay and sand being washed above the trench
24 would settle down into the trench.

25 Q. Weren't they enclosed trenches with wooden

1 tops?

2 A. They were enclosed trenches with wooden tops,
3 but the wooden tops were about 6 by 6 by 3 planks and
4 the water could go between. They weren't water tight.

5 Q. Couldn't the sediment have also included
6 product that had leaked through the pipes?

7 A. Anything that leaked out of the pipes would
8 get into that sediment, yes.

9 Q. Mr. Finch goes on to say that the concrete
10 that formed the trenches had gradually deteriorated.
11 Do you understand this to refer to the cracks in the
12 concrete that we discussed earlier in the trenches?

13 A. Yes, um-hun.

14 Q. Do you have any reason to doubt the accuracy
15 of that statement?

16 A. No, huh-uh.

17 Q. What is meant by the hangers holding the
18 pipes?

19 A. The pipes that ran through the trenches were
20 supported by hangers which were attached to the
21 concrete sides of the trench. As the concrete
22 deteriorated and the hangers moved the hangers actually
23 pulled out of the concrete he says. This means that if
24 you had hangers say every 15 feet, I don't know how
25 close they were spaced, but if you had hangers every 15

1 feet and two hangers in a row failed, you'd have a
2 pipe supported instead of every 15 feet you'd have it
3 supported that length, you'd have it supported for
4 every 45 feet. This would cause the pipe to deflect
5 unless, of course, there was enough sediment in there
6 to hold it up.

7 Q. Would the deflection of the pipe be likely to
8 increase the possibility that the pipe would leak or
9 rupture?

10 A. I never heard of any pipes rupturing, but it
11 could cause leaks, yes.

12 Q. In the second to the last paragraph of
13 Minnesota Exhibit 30 there is a reference to Mr.
14 Fenoglio preparing a preliminary estimate on June 3,
15 1963. Was this the same Mr. Fenoglio who worked as an
16 engineer in your office?

17 A. Yes, it was.

18 Q. Was this preliminary estimate that is being
19 discussed prepared as an estimate for the removal of
20 the pipelines in the underground trenches to be so that
21 they would be revamped as above-ground lines?

22 A. It was a request for authorization to spend
23 the money to put the pipes overhead.

24 Q. That would involve the removal of these
25 leaking pipes that we've been discussing from the

1 deteriorating trenches to the above-ground area?

2 A. Yes. Trenches would have been filled.

3 Q. Mr. Finch goes on to say, "The reason for the
4 delay between the preliminary estimate and the
5 consummation of the drawing was the inability to devote
6 engineering time to this project." Is what Mr. Finch
7 is saying there is that although the preliminary
8 estimate had been written up on June 3, 1963 as of the
9 date of Minnesota 30, which is March 16, 1967 the
10 preliminary drawing had not been prepared?

11 A. That's what he says. I didn't remember that
12 there was that long a time, but that's what he says.

13 Q. Do you remember a delay between the
14 preliminary estimate and the drawing on the basis of
15 that estimate?

16 A. I can't remember the time.

17 Q. Can you remember a delay?

18 A. Yes, um-hum.

19 Q. Would the period between June 3, 1963 and
20 March 16, 1967 be consistent with the delay that you
21 remember?

22 A. I think so.

23 Q. Mr. Finch goes on to say that engineering
24 time had not been available to Saint Louis Park. At
25 the time that Minnesota 30 was written you were the

1 chief of the engineering department, were you not?

2 A. Yes, I was.

3 Q. Is Mr. Finch correct that engineering time
4 was not available to the Saint Louis Park plant during
5 the period between June 3, 1963 and March 16, 1967?

6 A. Yes, he was.

7 Q. Why was that time not available?

8 A. We had a lot of big projects going on in
9 Indianapolis building a synthetic plant and additions
10 to it and that took all our time.

11 Q. Was there a plant engineer at Saint Louis
12 Park during that period from June '63 to March '67?

13 A. Yes. I don't remember exactly who he was,
14 but there was a plant engineer at Saint Louis Park and
15 when he left he was replaced by Mr. Paul White.

16 Q. When did Mr. Paul White start at Saint Louis
17 Park?

18 A. I don't remember.

19 Q. Was Mr. Finch suggesting that Mr. Fenoglio be
20 taken off the project of revamping the piping and Mr.
21 White be assigned that project?

22 A. I would say so because he says, "Mr. White
23 has now become familiar with the Saint Louis Park
24 refinery sufficiently so that a project of that nature
25 might be undertaken," yes.

1 Q. Was Mr. Fenoglio at that time still working
2 principally on your synthetic plant --

3 A. Right.

4 Q. -- that was going in so he didn't have
5 sufficient time to devote himself to this above-ground
6 piping project?

7 A. No. That's right.

8 Q. Turning to the second page of Minnesota 30,
9 Mr. Finch refers to the elimination of the ground tanks
10 and replacement by above-ground tanks. Is this the
11 project that you described in the outset that you
12 worked on at Saint Louis Park in eliminating
13 below-ground tanks?

14 A. I referred to it, yes.

15 Q. Did you work specifically on the elimination
16 of these ground tanks which Mr. Finch refers to?

17 A. I did not personally go to Saint Louis Park
18 and work on it. I can't remember what engineer worked
19 on it. I know Buddy Fenoglio worked on that earlier.
20 I believe maybe Mr. White handled it. I don't know. I
21 can't remember.

22 Q. But at the outset of our time together I
23 think Monday you referred to one of the projects that
24 you had done at Saint Louis Park was to work on the
25 removal of below-ground tanks. Would these be the same

4
1 tanks that you mentioned at the outset?

2 A. I can't remember what I was talking about. I
3 was involved in the removal of the underground tanks,
4 let's put it that way. Does that answer the question?

5 C. I think it does. Let me turn your attention
6 to the third page of Minnesota 30. Am I correct in --
7 it should be page 200417.

8 A. Yes, I have it.

9 C. Reilly date stamp number. Is this a
10 justification prepared in order to obtain a work order?

11 A. This is one of the documents that you must
12 fill out to prepare a -- to get authorization, yes.

13 Q. This justification form would be regularly
14 prepared in order to get approval by the finance
15 committee to have work performed that exceeded the
16 plant's monetary limit?

17 A. Yes. Yes.

18 Q. I'd like you to turn your attention to the
19 first of the numbered paragraphs where Mr. Finch states
20 that, "In winter ice collects around the lines and
21 makes pumping extremely difficult and slow due to cold
22 tar and oils settling up in the lines." What was Mr.
23 Finch referring to when he used the phrase coal tar and
24 oil settling up in the pipelines?

25 A. If you'll remember when we talked about the

1 way the plant was built in the early '20's they ran the
2 uninsulated steam line through pipe trenches with the
3 oil and tar line so the oil and tar line could stay
4 warm and you could pump through them. When oil and tar
5 gets cold, especially tar, it gets viscous and becomes
6 very difficult to pump. Well, we took the steam lines
7 out of the trenches, put them overhead at this time.
8 And as a result of that he was having great difficulty
9 pumping through his tar and oil lines.

10 Q. Would cold tar and oil have more of an effect
11 on pipes of inducing leaks than heated tar and oil
12 proceeding through the same pipes?

13 A. There again I have to give you a yes and no
14 answer. I'll give you a no answer because obviously
15 when the tar and oil is warm I believe it's a little
16 more corrosive than when it's cold. On the other hand,
17 it takes more pressure to push the tar and oil through
18 the lines when it's cold.

19 Q. The more pressure would be likely to induce
20 greater leaks?

21 A. Correct.

22 Q. If I can now turn your attention to item 4 on
23 the third page of Minnesota 30, right at the bottom.
24 Mr. Finch says that, "Lines that are above ground can
25 be inspected and leaks repaired easily." Is Mr. Finch

1 referring here to his difficulty in inspecting and
2 repairing leaks in the below-ground lines that were
3 then in existence?

4 A. Well, he's saying that if you put them above
5 ground they can be repaired easily. That's the way
6 plants are built now. They're all above ground.

7 Q. But in the situation that then existed where
8 the lines were below ground they could not be inspected
9 easily?

10 A. No. You had to take all the tops off the
11 trenches, you had to remove the tops and there was
12 quite a bit of work to it, you had to get down in the
13 trench and look for the leaks.

14 Q. Leaks could not be repaired easily when found
15 when they were below ground?

16 A. Unfortunately in the 1920's they used screwed
17 pipe, and it's very difficult to keep a screwed fitting
18 from leaking once it starts, especially when hangers
19 break and the pipe is moved.

20 Q. All of these pipes date from the era of the
21 1920's?

22 A. Well, I think over the years he put pipes on
23 top of pipes. In other words, when one would leak bad
24 enough he would replace it with a pipe and probably the
25 pipelines were welded. I don't know.

1 Q. Well, in number 30 this page Mr. Finch says,
2 "The present piping system has been in use since
3 1917-1927." Wouldn't that suggest that the piping
4 system was all --

5 A. "The present piping system has been used
6 since 1917, '27 - and now beginning to wear a little
7 thin."

8 Q. Wouldn't that suggest that the pipes
9 generally date back from the 1917 to 1927 era?

10 A. That's what it says.

11 Q. So that would be the era of screwed pipe?

12 A. Yes.

13 Q. If I can return your attention back again to
14 number 4, the second sentence, Mr. Finch says that,
15 "This -- referring to above-ground lines -- reduces the
16 amount of ground contamination." What was Mr. Finch
17 referring to when he meant ground contamination?

18 A. Well, he's saying that if you put the lines
19 overhead and inspect it for leaks, it reduces the
20 amount of oil that falls on the ground. That's what
21 he's saying.

22 Q. Would below-ground pipes increase the amount
23 of ground contamination?

24 A. The pipes when they're in a trench and
25 they're very difficult to inspect and it's much more

1 difficult to fix the leaks and the leaks fall on the
2 floor of the concrete pipe trench and any crack in it,
3 why, the oil could get through to the ground.

4 Q. That would be likely to increase ground
5 contamination or produce --

6 A. Yes.

7 Q. Or produce ground contamination?

8 A. Um-hum.

9 Q. Yes, it would? I'm sorry.

10 A. Yes, it would, um-hum.

11 Q. Mr. Finch then says that, "The amount of
12 ground contamination is now becoming a public issue."
13 How do you understand the amount of ground
14 contamination becoming a public issue?

15 A. Well, I suppose there were a lot of articles
16 printed about ground contamination, I don't know, in
17 1967.

18 Q. Do you have any sense that ground
19 contamination was a public issue in Saint Louis Park at
20 the time that Mr. Finch wrote Minnesota Exhibit 30?

21 A. I don't remember that it was.

22 Q. Mr. Finch then goes on to say, "This might
23 save us severe control by the government for ground
24 contamination." Do you know of any efforts to control
25 the ground contamination at the Saint Louis Park plant

1 in 1967?

2 A. Well, only what we have discussed putting in
3 settling basins and changing these lines to overhead
4 lines and bypassing the settling basin with sodium
5 sulfate and keeping the rain water as well as we could
6 out of the basin. Those were all for that purpose.

7 Q. I think maybe my question wasn't clear. What
8 I meant to say, if I can be allowed to rephrase it, was
9 do you know of any effort by the government, by any
10 government, to control ground contamination in Saint
11 Louis Park about the --

12 A. In Saint Louis Park in '67?

13 Q. Yes.

14 A. I can't remember, no.

15 Q. Do you have any sense what Mr. Finch was
16 referring to then by "severe" in his reference to
17 severe control by government?

18 A. Well, what he says is, "Ground contamination
19 is becoming a public issue and this might save us from
20 severe control by the government." All I know is what
21 it says.

22 Q. Did you have any awareness in 1967 about
23 increasing environment concerns about ground
24 contamination caused by plant effluents?

25 A. I think in '67 that's about when I first

1 started hearing about it. Well, let's see. Oh, this
2 is ground contamination. No, I didn't. Okay.

3 MS. COMSTOCK: Before you move on to
4 another document, perhaps you can go off the record and
5 discuss some things related to this deposition and Mr.
6 Horner's deposition.

7 MR. HIRD: Can I take advantage of the
8 off the record discussion?

9 (At this time a discussion was held
10 off the record.)

11
12 (At this time the deposition was adjourned
13 and set to be resumed at 9:00 on the
14 12th day of January, 1983.)

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CONTINUED CROSS-EXAMINATION

BY MR. HIRD:

Q. I Mr. Hennessy, would you take a look at Minnesota Exhibit 22, please?

A. Okay. I read it.

Q. Mr. Hennessy, at the time of Minnesota 22 what was Mr. Mootz' position?

A. Same that Mr. Lesher's is now. He was production manager.

Q. Does Minnesota 22 appear to you to be a document written by Mr. Mootz in the course of his duties as a Reilly Tar employee?

A. Yes, it is.

Q. If I could turn your attention to the second paragraph in the middle sentence Doctor Mootz states that, "Boiler blow down enters the settling pond at Saint Louis Park and contributes considerably to nonpumpable sludge material." Do you understand Doctor Mootz here referring to the settling basin that we have been discussing?

A. Yes.

Q. I believe you testified on an earlier day that you did not believe that the boiler blow down at Saint Louis Park went into the settling basin.

A. That is correct. I did.

1 Q. Does Minnesota 22 correct your recollection?

2 A. I wouldn't say it corrected it. It
3 contradicts it.

4 Q. Do you believe that Doctor Mootz is right in
5 saying that the boiler blow down entered the settling --

6 MS. CONSTOCK: I'm going to object to
7 that question as being speculative and asking for a
8 conclusion of the witness beyond his knowledge.

9 Q. I'd like an answer.

10 A. You'd like the answer?

11 Q. I'd like to hear an answer.

12 A. We put in a settling -- not a settling pond.
13 We put in a settling bag in, settling tank call it, for
14 blow down. The boiler blow down went into a blow down
15 tank and from the blow down tank it was settled and
16 only the water went to the settling basin, not the
17 sludge from the boiler blow down. Now, that is my
18 recollection.

19 Q. When was this boiler blow down tank placed in?

20 A. Well, different times there were two of them.
21 There was one, if you remember, there was one on the
22 ground and then later on we elevated it.

23 Q. Were you involved personally in the elevation
24 of the boiler blow down tank?

25 A. Indirectly.

1 Q. What was the nature of your involvement?

2 A. Well, either Mr. Fenoglio or Mr. Lauck, I
3 can't remember which, I believe it was Mr. Fenoglio did
4 the work. I didn't do it. I wasn't at Saint Louis
5 Park at the time. I know about it.

6 Q. Do you have any sense about what time this --

7 A. In the '60's. It was elevated.

8 Q. Okay. Do you have any sense of what time the
9 boiler blow down tank was installed?

10 A. The first one?

11 Q. Yes.

12 A. No. Probably was installed at the time the
13 boiler was installed.

14 Q. When was that?

15 A. About, it's a guess, but ballpark figure
16 would be about 1940.

17 Q. So based on your recollection you believe
18 Doctor Mootz is incorrect when he says that the boiler
19 blow down entered the settling basin?

20 A. Let me say that I don't understand it. I
21 don't know whether he's incorrect or not, but I don't
22 understand why it would. Now, by boiler blow down
23 you're speaking of solids in the boiler blow down,
24 right?

25 Q. Well, I'm speaking of the vapor or water on

41
1 the boiler blow down along with any solids that it
2 would be carried with it.

3 A. All right. To clarify the story then, the
4 solids in the boiler blow down were settled out or
5 separated and the water, which was distilled water, it
6 was water made into steam, well, not distilled water,
7 but it was water that was treated water, boiled in the
8 boiler. And then that water containing the sludge from
9 the boiler drum was blown down into a tank where the
10 solids were separated. And then the liquid after the
11 tank was elevated the liquid bypassed the basin.
12 Before the tank was elevated the liquid ran through the
13 basin. That's my understanding.

14 Q. How did the tank work?

15 A. How did it work?

16 Q. Yes. How did it work to settle the --

17 A. The first tank received the total blow down.
18 And the boiler operator when he blew down the boiler
19 put water in that tank to knock down the temperature of
20 the blow down. From there it flowed into what might be
21 described as an open pan. I called it a pond. Let's
22 call it a pan because it wasn't very big. It didn't
23 have to be very big. The solids settled out and the
24 overflow from that, I believe, went to the settling
25 basin before it was elevated. But after it was

1 elevated it bypassed the settling basin. This is when
2 Mr. Fenoglio was there.

3 Q. Okay.

4 A. Okay.

5 Q. So when Mr. Fenoglio was there the water,
6 when Mr. Fenoglio elevated the blow down tank, the blow
7 down water after going through the tank would go
8 straight into the ditch without going through the
9 settling basin?

10 A. That is my understanding, yes.

11 Q. If I can turn your attention to the third
12 paragraph of Minnesota Exhibit 22. Doctor Mootz states
13 that the pond has not been cleaned in 20 years. I
14 think we can understand -- do you understand from his
15 use of the word "pond" there that he's referring to the
16 settling basin?

17 A. He's referring to the settling basin.

18 Q. Do you have any reason to believe that Mr.
19 Mootz is not accurate in saying that the settling basin
20 has not been cleaned in 20 years?

21 A. This is strictly production. I wasn't in on
22 that. I won't argue with it. By clean he's talking
23 about taking solids out of the basin.

24 Q. So to your knowledge Doctor Mootz' statement
25 is accurate?

1 MS. CONSTOCK: I want to make a standing
2 objection to those questions that cause the witness to
3 speculate on another person's knowledge.

4 MR. HIRD: I didn't cause the witness to
5 speculate on another person's knowledge. I caused him
6 to speculate on his own knowledge.

7 MS. CONSTOCK: I want to make an
8 objection on the record to the question.

9 Q. Could I have an answer to the question?

10 A. Well, the answer to the question is I don't
11 know really.

12 Q. Let me try and rephrase it and perhaps I can
13 take care of Miss Comstock's objection although I don't
14 quite understand it. Do you have any personal
15 knowledge or information which would lead you to
16 believe that Doctor Mootz' statement that the pond has
17 not been cleaned in 20 years is inaccurate?

18 A. I have no personal knowledge because I can't
19 tell you when the pond was cleaned. I didn't keep
20 records of it. I don't know.

21 Q. Do you have any other information from any
22 other source that might lead you to believe that Doctor
23 Mootz' statement was inaccurate?

24 A. I have no information either way whether it
25 was accurate or inaccurate.

1 Q. If the statement is accurate that the
2 settling basin has not been cleaned in 20 years, would
3 that be in accordance with the proper maintenance
4 procedures for taking care of this settling basin?

5 A. Well, any solids that get into the basin must
6 be dug out, you know, with a back hoe or something like
7 that. When we wrote the specifications for operating
8 the basin to Herb Finch -- or not to Herb Finch but
9 David Larkin when the basin was built, we, of course,
10 just discussed oil and water, settlable oil and
11 floating water. We did not think about large
12 quantities of solids being washed into the basin.

13 Q. Mr. Hennessy, I'm a little confused because I
14 think I asked you on Monday whether you had prepared
15 any written instructions to Mr. Larkin as to the
16 operation and care and maintenance of the settling
17 basin. I believe you testified that you did not. Are
18 you --

19 A. I did not but the engineering department
20 obviously did.

21 Q. Is this --

22 A. I don't know whether they were written or
23 whether they were oral. I'm sure they discussed the
24 operation of the basin.

25 Q. Is that based on personal knowledge of events

41
1 having occurred or simply your knowledge of the
2 operation of the engineering department?

3 A. It's simply my knowledge of the operation of
4 the engineering department.

5 Q. So you've no specific recollection that
6 instructions were given?

7 A. I don't recall any phone calls or letters
8 where the instructions were given.

9 Q. If the pond were not cleaned -- or the
10 settling basin were not cleaned in 20 years, would you
11 consider that as the designer of the pond to be proper
12 maintenance procedure?

13 A. If large quantities of solids were washed in,
14 they should have been cleaned out. Now, actually if
15 the settling basin never had a lot of sand and stuff
16 washed into it, they could have operated without --
17 technically they could have operated forever without
18 cleaning it out because you pumped out the heavy oil
19 and you skimmed off the light oil and that was it. But
20 if you got all kinds of mud and sand in there, why,
21 there is no way you could pump that out. You have to
22 take and clean it out with a back hoe.

23 Q. Wouldn't it be likely that over a period of
24 20 years the mud and sand would find its way into a
25 settling basin in substantial quantities?

1 A. There would be small quantities of it.

2 Q. Doctor Mootz goes on to say that there is 6
3 to 8 feet of sludge in the bottom of the settling basin.
4 Do you have any personal knowledge or information that
5 would permit you to doubt the accuracy of that
6 statement?

7 A. Well, since the settling pond is only 10 feet
8 deep as we saw the other day from some document you
9 gave me, I rather doubt the accuracy of the statement.
10 In the first place if the stuff got 8 feet deep, it
11 would cover the effluent pipe and I don't think
12 anything would flow out of it.

13 Q. Would the sludge be observable from the top
14 of the pond if it were 6 to 8 feet deep?

15 A. It would depend on how murky or how turbid
16 the water was. If you had high turbidity in the water,
17 you won't be able to see it. If you had clear water,
18 you could see it because you can see through 2 feet of
19 clear water. Actually, it would be less than two feet
20 because the pond was 10 feet deep. I'm sure that the
21 operating level was at least a foot below the top of
22 the pond.

23 Q. So you'd be likely to see sludge in the
24 settling basin if it were 6 to 8 feet deep?

25 A. If you had 6 to 8 feet of sludge in the

1 settling basin, the top of the sludge would be within
2 one foot of the surface and I think unless the water
3 were just terribly dirty you would see it, yes.

4 Q. In State Exhibit Number 22 Doctor Mootz
5 refers to a call from Mr. Finch. Mr. Finch at that
6 time was plant manager of the Saint Louis Park plant?

7 A. Yes, he was.

8 Q. Do you understand Doctor Mootz as reporting
9 information that was told to him by Mr. Finch in that
10 conversation?

11 A. I don't recall this document at all. I never
12 got a copy of it. To be honest about it, it's a
13 surprise to me. But anyway, where it says about the
14 phone call?

15 Q. The first line of Minnesota 22.

16 A. All right. I don't recall such a phone call
17 because Mr. Mootz' office was in the main office and
18 Mr. Finch's office was in Minneapolis and there is no
19 way I would know about the phone call. Incidentally, I
20 worked at the laboratory which is 5 or 6 miles from the
21 main office.

22 Q. As plant manager would Mr. Finch be in the
23 best position to know the condition of the settling
24 basin?

25 A. Mr. Finch would know more about the

1 conditions of the settling basin than anybody in the
2 company. It was he was the boss of the operators you
3 might say or he was in charge of the operation.

4 Q. From your review of Minnesota 22, doesn't it
5 appear that Mr. Mootz is speaking on the basis of
6 information that he has gained in part by virtue of his
7 conversation with Mr. Finch?

8 MS. CONSTOCK: Objection. Speculative.

9 A. It would appear that way.

10 Q. Thank you. Doctor Mootz says that the sludge
11 that is accumulated in the bottom of the settling basin
12 cannot be pumped out. What type of sludge could not be
13 pumped out from the settling basin?

14 A. Sands, clay, any kind of solids that were in
15 and could not be pumped out.

16 Q. Would that include tar balls, pitch, solids,
17 et cetera?

18 A. Tar balls if by tar balls you mean a mixture
19 of tar and sand, which I think is probably what you're
20 referring to, they could be entrained in the heavy oil
21 being pumped I suppose and pumped out. I don't know.
22 What was the other thing you asked me? Pitch? There
23 is no way pitch could get in there.

24 Q. But tar balls consisting of tar and sand
25 could accumulate in the sludge at the bottom of the

1 settling basin?

2 A. I don't know what would make it ball. It
3 might. But I rather doubt that it would because you
4 have to have some sort of agitation I think to form a
5 tar ball.

6 Q. I believe you testified a few moments ago
7 that if there were 6 to 8 feet of sludge in the bottom
8 of the basin, it would not be effective in settling out
9 oils. Why would that be correct?

10 A. If there were 6 to 8 feet of sludge in the
11 bottom of the basin it would not be effective for two
12 reasons. First of all, your resident time would be too
13 short to separate it and the second time nothing would
14 flow through the basin anyway. Not even water.

15 Q. It would just flow right out of the basin?

16 A. Well, if the sump was high enough and it
17 probably was, it could just flow over the basin, but I
18 never heard of that happening.

19 Q. If there was a tendency for sludge whether in
20 the form of sand or dirt or any other solid substance
21 to accumulate in a settling basin, would it be proper
22 maintenance practice not to clean a settling basin for
23 20 years?

24 MR. SCHWARTZBAUER: Could I hear the
25 question again?

1 (At this time the requested portion of
2 the record was read aloud by the Court
3 Reporter.)

4 MR. HIRD: Do you have an objection?

5 MR. SCHWARTZBAUER: No.

6 A. It would depend on how deep the sludge got,
7 but I can imagine a settling basin not being cleaned
8 for 20 years and operating properly if great quantities
9 of sand and silt and mud didn't get into it.

10 Q. But if quantities that would fill up this
11 settling basin 60 to 80 percent of its capacity got
12 into the basin, would proper maintenance procedure be
13 to leave it for 20 years without cleaning?

14 A. Well, we don't know when this 8 feet
15 accumulated. It might have accumulated over the last
16 year. We don't know. It might have gone for 18 years
17 or 19 years with not requiring cleaning and then all
18 of a sudden due to some event, why, it would require
19 cleaning then if you wash great quantities of solids
20 into the basin.

21 Q. Would it be proper maintenance procedure to
22 clean a settling basin more frequently than once every
23 20 years or at least inspect a settling basin more
24 frequently than once every 20 years to determine
25 whether sludge had accumulated?

1 A. I'm sure that the basin was inspected more
2 than once every 20 years.

3 Q. So then you believe that 6 to 8 feet of
4 sludge developed in the course of one year?

5 A. It could very easy have developed in the
6 course of one year.

7 Q. Why could it have? Why could sludge have
8 developed to such a level within a single year?

9 A. There again we're talking about history and
10 dates and I don't know the dates. But I know in the
11 '60's the city of Saint Louis Park had a flood in an
12 area, I don't know whether storm sewers became stopped
13 up or what, but they had a flood north of the plant.
14 One day a big wall of water came down the north boundary
15 of the plant which was a steep slope and washed gullies
16 in the slope even. And that wall of water flooded the
17 boiler room, it flooded the treating room, it flooded
18 the settles basin, it flooded that whole area of the
19 plant. I remember Herb Finch, "What the hell's going
20 on?" He ran up there and they had fire engines or
21 portable pumps and everything else with hoses thrown
22 across the bank and they were pumping the storm water
23 down into our plant.

24 Q. Was that the only time the plant was flooded?

25 A. Oh, no. No. But that's the only time that I

1 know of my personal knowledge that the flood came from
2 the north.

3 Q. You know whether the floods that effected the
4 Saint Louis Park plant happened only in a single year
5 or happened over the course of several years?

6 A. Are you talking about floods or are you
7 talking about floods from the north end of the plant?

8 Q. I'm talking about floods.

9 A. No. They happened quite often after Louisiana
10 Street had been relocated. I told you I was at the
11 plant when they had a flood and the water was more than
12 a foot deep in the road to the west of the refinery.

13 Q. Do you have any personal knowledge of
14 inspections of the settling basin for accumulated
15 solids in the bottom?

16 A. I have no personal knowledge. I never
17 inspected it and no one that was working under my
18 direction inspected. This was strictly a job for the
19 plant manager.

20 Q. So you have no personal knowledge when or if
21 these inspections were conducted?

22 A. I would have no way of knowing any more than
23 I would know boiler inspections or anything else. I
24 didn't know when they were inspected.

25 Q. In the final paragraph of Minnesota 22 Doctor

1 Mootz refers to skimming the top of the oil-water
2 separator. Do you have any knowledge that the skimming
3 mechanism at the top of the oil-water separator was not
4 working properly or was not functioning at all at any
5 period of time?

6 A. I have no personal knowledge, no.

7 Q. Would skimming the top be essential for the
8 oil-water separator to properly function?

9 A. It wouldn't function too long without letting
10 light oils down in the effluent if you didn't skim it
11 periodically.

12 Q. If there were broken baffles on the top of
13 the oil-water separator, would that be inducive to poor
14 skimming?

15 A. Yes, it would.

16 Q. If baffles were left in a broken condition
17 for an extended period of time, would that mean the
18 skimming would not be effective?

19 A. For an extended period of time. Skimming
20 would be ineffective.

21 Q. Mr. Hennessy, I'd now like you to take a look
22 at Minnesota 50 if you would, please.

23 A. Okay. I read it.

24 Q. Mr. Hennessy, I notice that Minnesota 50 was
25 carbon copied to you at the time that Mr. Leshar wrote

1 it. Did you receive a copy of Minnesota 50?

2 A. I probably did. I don't remember receiving a
3 copy, but I'm sure I did since it was carbon copied to
4 me.

5 Q. Did you see a copy of Minnesota 50 in your
6 witness kit?

7 A. I believe it was in there, but I wouldn't
8 swear to it.

9 Q. What was Mr. Leshar's position at this time?

10 A. Mr. Leshar succeeded Doctor Mootz as the
11 production manager for the tar division.

12 Q. Mr. Leshar in his opening sentence refers to
13 a visit to the Saint Louis Park plant during which he
14 reviewed the general refining operation. Do you have
15 any knowledge of the circumstances of that visit?

16 A. I don't know why he went to the plant, but he
17 said -- the letter just says during his visit he
18 reviewed in general the refinery and the water
19 pollution problems at Saint Louis Park. All I know is
20 what it says in the letter. Why he went there in the
21 first place I don't know or what prompted the visit I
22 don't know.

23 Q. You did not accompany him?

24 A. Oh, no. No, I did not.

25 Q. Mr. Leshar refers to the plant as having a

1 crude settling basin. Would you agree with that
2 description of the settling basin at Saint Louis Park?

3 A. I would say the settling basin at Saint Louis
4 Park which was built in '41 or '42, somewhere around
5 there, was crude when you compared it with some of the
6 later basins we built.

7 Q. So as of 1968 when Mr. Leshar was visiting
8 the plant the settling basin would be crude by the
9 technological standards?

10 A. It wasn't as good as the other basins of the
11 later technology.

12 Q. Mr. Leshar says at the time of his
13 observation of the settling basin the level of solids
14 in the basin was quite high. Do you have any personal
15 knowledge that would indicate that Mr. Leshar's
16 observations were inaccurate?

17 A. No.

18 Q. What would be the effect of solids in the
19 settling basin being quite high?

20 MS. CONSTOCK: The question's been asked
21 and answered by this witness several times.

22 MR. HIRD: I don't think the question
23 has been asked. Let me withdraw it and come back to it
24 because I think I can make it a new question on the
25 basis of some further questioning.

1 BY MR. HIRD:

2 Q. If you turn to the third paragraph of
3 Minnesota 50 Mr. Leasher refers to one of the problems
4 in the operation of the settling basin being solids
5 from the boiler blow down. Would these solids be
6 substances such as tar balls and the like?

7 A. There would be no tar balls in the boiler
8 blow down. It would be boiler scale and water.

9 Q. What would the boiler scale consist of?

10 A. Consist of calcium and magnesium salts,
11 calcium carbonate and magnesium carbonate.

12 Q. If boiler blow down solids in the settling
13 basin reached quite a high-level, what effect would
14 that have on the operation of the settling basin?

15 A. They would add to the solids. The magnesium
16 and calcium salts would add to the quantity of solids
17 in the basin.

18 Q. That would make the settling basin less
19 effective?

20 A. Well, yes, but how much boiler scale can you
21 get?

22 Q. Over 20 years probably quite a lot.

23 MS. COMSTOCK: Is that a question?

24 MR. HIRD: No. That was an aside.

25 BY MR. HIRD:

1 Q. Mr. Lasher goes on to say, "The condition of
2 the baffling system in the pond is questionable."
3 Would you understand him to mean that the baffling
4 system in the settling basin is not operating properly
5 at the time of his observation?

6 MS. COMSTOCK: Objection. Speculative.

7 A. Yeah.

8 Q. I'm just asking him what his understanding is
9 of written words. That's not speculation.

10 A. If you want me to prove I can read that's
11 what it says. It says that it's questionable. That's
12 what it says.

13 Q. Well, you received a copy of Minnesota 50.
14 Mr. Lasher goes on to say that, "The visual appearance
15 and quantity of oil going out of the plant was
16 terrible." Is Mr. Lasher here referring to the oil
17 leaving the plant through the ditch after it had gone
18 through the settling basin?

19 MS. COMSTOCK: Objection. Speculative.

20 MR. HIRD: That's interesting, Miss
21 Comstock. Are you saying that the witness does not
22 know how to read? Obviously this document was written
23 to --

24 MS. COMSTOCK: I say the document speaks
25 for itself.

1 MR. HIRD: -- Mr. Hennessy to have him do
2 some --

3 MR. SCHWARTZBAUER: It was written to
4 Mr. White, wasn't it?

5 MR. HIRD: It was received by Mr.
6 Hennessy.

7 MR. SCHWARTZBAUER: David, you can read
8 and I can read and a Judge and a jury can read. What
9 good does it do to sit for two days to ask the witness
10 of his understanding of a document?

11 MR. HIRD: He was in the Reilly
12 engineering department.

13 BY MR. HIRD:

14 Q. Let me ask you this. What would you have
15 felt yourself expected to have done upon receipt of
16 such a document?

17 A. What would -- what was the question again?

18 Q. What would you feel that you as a Reilly
19 employee would be -- what would be your obligation with
20 respect to the condition of the settling basin upon the
21 receipt of Minnesota 50?

22 A. If they asked for engineering assistance I
23 would provide it. If plant maintenance could handle it
24 and the plant engineer was Mr. P. E. White could handle
25 it, then I would just -- it would just be for my

1 information.

2 Q. But someone in the Reilly organization should
3 handle the problems in the settling basin?

4 A. Mr. Finch obviously had an operator or
5 operators for the settling basin. He was running the
6 plant and this is his prerogative and his
7 responsibility. How Mr. Finch ran his plant I have a
8 little knowledge of it, but I can't tell you who's in
9 charge of what or how he did it.

10 Q. So it wouldn't be your concern?

11 A. I never got into it.

12 Q. So it wouldn't be your concern if the
13 settling basin was not operating properly?

14 A. No. I had nothing to do with the operation of
15 the settling basin.

16 Q. Do you have any reason to believe that Mr.
17 Leshner's statement that the visual appearance and
18 quantity of the oil going out of the plant was terrible
19 was an inaccurate statement?

20 A. No. Mr. Leshner observed it. I didn't. I
21 wouldn't argue with him. I'm in no position to argue
22 with him.

23 Q. Mr. Leshner says that, "The presence of solids
24 from the boiler blow down in the settling basin changed
25 the characteristics of the materile in the settling

1 basin." How could solids in the settling basin change
2 the characteristics of other material in the settling
3 basin?

4 A. Well, as I've already mentioned, any solids
5 you mix with that heavy oil makes it more difficult to
6 pump. And if you get enough solids you won't have a
7 liquid. You can't pump it and you have to clean it out.

8 Q. Mr. Lesher says at the final paragraph on the
9 page that, "Contaminated water also originates at the
10 tar cistern." How could that water have become
11 contaminated?

12 A. Tar coming into the plant has about 2 percent
13 water in it of which settles out over a period of time.
14 I've already explained to you how they unloaded tank
15 cars so that if a valve broke or something the tar
16 would flow into the pit rather than all over the yard.
17 But that design also any rain that would get into the
18 unloading shed would also go into the pit. So there is
19 two methods water could get on top of the tar.

20 Q. What would happen to the water when it got on
21 top of the tar? Where would it go from there?

22 A. It would sit there until they pumped it off
23 the tar.

24 Q. And pumped it down into the ditch without
25 going through the settling basin?

1 A. Correct, yes.

2 Q. What would you consider to be the minimum
3 frequency for inspecting the settling basin for
4 accumulated solids?

5 A. I don't know.

6 Q. One year, 6 months?

7 A. If I were running a plant, I would go by
8 experience. If 5 years would do it, okay, I would do
9 it. But if there were any big upset caused by a flood
10 or something, I think it should have been inspected
11 immediately after the water went down. But I don't
12 know what Mr. Finch did. I have no knowledge of it.

13 Q. I'd like you to take a look now at Minnesota
14 23.

15 A. All right.

16 Q. Do you recall receiving a copy of Minnesota
17 23?

18 A. Well, I'm sure I received it because my name
19 is on it. But I don't recall it. It's been quite a
20 long time ago, 15 years ago.

21 Q. But you did receive it?

22 A. I'm sure I did. My name is on it.

23 Q. Was a copy of Minnesota 23 in your witness
24 kit?

25 A. It probably was.

1 Q. Mr. Hennessy, in the opening line of
2 Minnesota 23 there is a reference to work recommended
3 by you for collecting data and control of water
4 pollution at Saint Louis Park. What work did you
5 recommend for controlling water pollution at Saint
6 Louis Park at this time?

7 A. Well, it looks like, it's on the next page,
8 install a straw filter, clean the separator, clean the
9 trenches, and elevated blow down tank. There is your
10 elevated blow down tank. Okay.

11 Q. Does Minnesota 23 refresh your recollection
12 that the elevated blow down tank was not installed as
13 of May 20, 1968?

14 A. Well, that's the date on the letter. I don't
15 recall exact dates. But this letter was written May
16 the 20th. It was obviously written prior to elevating
17 the blow down tank.

18 Q. When the blow down tank was elevated, was a
19 new tank installed or was the old tank simply elevated?

20 A. I don't remember whether a new tank was put
21 in or the old one was elevated. I assume a new tank
22 was put in because -- well, I don't know really.

23 Q. If you look at the opening paragraph on the
24 first page of Minnesota 23 there is a reference to the
25 phrase of installing an elevated blow down tank. Would

1 that indicate to you that a new tank was put in as
2 opposed to the use of the phrase, for example,
3 elevating the existing tank?

4 A. Well, I'll have to admit I was a little bit
5 ambiguous -- or I didn't write this. Mr. White wrote
6 it. It's a little ambiguous. It's kind of difficult
7 to tell whether he's going to use the old tank or
8 install a new one. My guess would be he would install
9 a new thing because the thing would be out of service
10 if he elevated the old one. It would be out of service
11 during the construction period. So I would assume he
12 put in a new tank and bypass the old one.

13 Q. Could you look on the second page of
14 Minnesota 23 under the phrase elevated blow down tank?

15 A. Yes.

16 Q. I believe Mr. White refers there to framework
17 and insulation by more welding including replacement of
18 existing blow down lines with welded pipe. Would that
19 reference and the price figure for that indicate to you
20 that actually the old blow down tank was elevated as
21 opposed to a new one being installed?

22 A. He says our -- you notice under elevated blow
23 down tank he says, "Our own tank." Now, whether this
24 is the same tank or another one from some abandoned
25 part of the plant I don't know. When you're in the tar

1 business or in the tar and creosoting business you get
2 a lot of changes in processes over the years and some
3 tanks are abandoned and they're available for some work
4 like this. If you need a small tank you can use it.
5 He says he built a framework to elevate the tank. Now
6 where he got the tank I don't know. I don't know
7 whether it was an old tank that had been used which is
8 a possibility, but I doubt it, or it could have been a
9 tank we had on hand somewhere else which is more likely.

10 Q. Moving up the second page of Minnesota 23
11 there is a reference to cleaning the separator. Is
12 that expenses to be incurred for cleaning the settling
13 basin separator that you designed at Saint Louis Park?

14 A. Yes. This is obviously cleaning solids
15 because he's putting it in a dumpster, 50 loads at \$25
16 a load. That means that he's hauling solids out of
17 there and not liquid.

18 Q. What is the capacity of a dumpster?

19 A. I don't know. Dumpsters come in different
20 capacities.

21 Q. What would be the minimum capacity of a
22 dumpster?

23 A. The minimum capacity of a dumpster? I don't
24 know. I've seen them very small used around apartment
25 houses and I've seen huge ones used on state highways.

1 Our trash man that picks up the trash in our whole area
2 uses a dumpster.

3 Q. Well, about how big is the one that your
4 trash man uses?

5 A. How big is it? It's a huge truck, enormous.
6 But you can get them all sizes. So the word dumpster
7 is a trade name. It's like how big is a Dodge truck or
8 how big is a Ford truck.

9 Q. Do you have any sense of how big the smallest
10 possible dumpster?

11 MS. CONSTOCK: I believe the witness has
12 stated that he does not know the answer to that
13 question.

14 Q. Can I have an answer? My question was how
15 big is the size of the smallest dumpster with which you
16 are familiar with?

17 MR. SCHWARTZBAUER: Don't guess, Dick.

18 A. I don't know really. There is no way I know.
19 It's very small though. I know that --

20 MR. HIRD: Why don't we take a break for
21 a few minutes.

22 (At this time a recess was held.)

23 BY MR. HIRD:

24 Q. Mr. Hennessey, do you know -- there is a
25 reference on Minnesota Exhibit 23 to Hirsh Dumpster,

1 Inc. Do you know where Hirsh Dumpster, Inc. was
2 located?

3 A. No, I don't.

4 Q. Do you have any information about the company?

5 A. No. It's obviously a local company that rents
6 out dumpsters, but who they are I don't know.

7 Q. You never had any independent dealings with
8 them --

9 A. No.

10 Q. -- other than this document?

11 A. I did not.

12 Q. Mr. Hennessy, in Minnesota 23 I see that part
13 of the operations that you recommend for the control of
14 water pollution is the installation of a straw filter
15 at the discharge of the plant. I understood from your
16 previous testimony that a straw filter had been
17 installed at the plant in 1951, is that correct?

18 A. That's correct.

19 Q. In that case there was at the time 1968 there
20 was no straw filter in operation at the plant?

21 A. That is incorrect. There were two straw
22 filters installed. One earlier and one later. There
23 was one just beyond the settling basin and one at the
24 settling basin and one at the effluent of the plant or
25 well, one just before the water left the plant.

1 Q. So the progression of the effluent would be
2 to go through the settling basin into the first straw
3 filter and then into the second straw filter?

4 A. That is correct.

5 Q. Does Minnesota 23 refresh your recollection
6 that the second straw filter was installed after May
7 1968?

8 A. Well, obviously it was because -- I can't
9 remember the dates, but this letter asking for
10 authorization to install it was written in 1968, May of
11 '68.

12 Q. Why was the first straw filter inadequate?

13 A. Well, if Mr. Lesher says that a lot of oil
14 got through it because of solids in the settling basin,
15 why, it would probably need changing quite often. So
16 they wanted a back-up filter for safety. That's the
17 only thing I can think of. That's the only reason I
18 can remember.

19 Q. Was the second straw filter of a different
20 design than the first straw filter?

21 A. No, it was not. By different design it may
22 have had different dimentions because of where it was
23 located, but the design was the same.

24 Q. Would it eliminate a different type of oil
25 that would not be eliminated by the first straw filter?

1 A. No. It would eliminate the same oil. If the
2 first straw filter ceased functioning because the straw
3 very quickly got saturated, why, then this one would
4 catch it.

5 Q. I also see a reference here as part of the
6 elevated blow down tank operation to pit construction
7 and trenches. What kind of pit construction and
8 trenches were engaged in order to elevate the blow down
9 tank?

10 A. I can't remember. He was asking for \$300 to
11 do something about pit construction and trenches. So
12 what he did with \$300 I don't remember or if that -- I
13 can't even tell you whether that figure -- that figure
14 didn't come from me because it's Reilly labor and I
15 would have no way of -- he put his plant labor costs on
16 there. That is some of his maintenance men evidently
17 were going to do some work.

18 Q. Wouldn't the construction of trenches be a
19 decision involving engineering advice?

20 A. Well, he says pit construction. I don't know
21 what he means by that whether -- he didn't construct a
22 pit. He may have repaired a pit. He may have repaired
23 some trenches. He spent \$300. Well, \$300 even in 1968
24 I don't know how much work you could do for \$300. This
25 is strictly labor. \$300 Reilly labor it says. I can't

1 remember the details of that. But I think probably
2 that figure came from Paul White. It had to.

3 Q. Mr. Hennessey, do you have any sense of the
4 total amount of solids which were hauled away from the
5 settling basin?

6 A. No, I don't because all I know is he says he
7 estimates it's going to take 50 loads. Now, how much
8 that is I don't know.

9 Q. It's going to cost \$1,250?

10 A. That's what he says.

11 Q. Do you have any information --

12 A. There again this is his figure not mine
13 because I don't know anything about Hirsh Dumpster. I
14 had no way of knowing there would be 50 loads. This is
15 the plant's figure I'm sure.

16 Q. But if his suggestion was made to you to haul
17 away 50 loads at a cost of \$1,250, there would be no
18 reason why you would think that this was unnecessary or
19 an extravagant expense?

20 A. No. He obviously has rented some sort of a
21 dumpster which he settled out and dug it out with a
22 back hoe and then Hirsh Dumpster hauled it away and got
23 rid of it for us. What details I can't tell you about
24 because I wasn't involved.

25 Q. But you would not regard this price at \$1,250

1 as being extravagant for hauling away waste from the
2 settling --

3 A. I don't remember. If I would have objected
4 to it, I would have either written a letter or made a
5 phone call or maybe I questioned it. But I don't
6 remember doing that at all. I think I just let it go.
7 That is when it came to me. See, this work order
8 request is coming from Paul White. He made this out.
9 He used some of my figures and obviously some of his
10 own.

11 Q. But Mr. White does say that the work order
12 request covers work that had been recommended by you?

13 A. Yes. That's correct.

14 Q. Do you recall recommending this work?

15 A. Oh, I can't recall exactly what I recommended,
16 no.

17 Q. What kind of work did you recommend for
18 collecting data?

19 A. For collecting data did I recommend --

20 Q. If you look at the first page of Minnesota 23
21 there is a reference to recommendations by you for
22 collection of data.

23 A. "Covers work recommended by Mr. Leshner and
24 Mr. Hennessy for collecting data." I don't know. I
25 can't remember to be honest about it.

1 Q. Do you recollect collecting any data around
2 1968 concerning plant effluent at Saint Louis Park?

3 A. No. I don't remember what data I collected.
4 He says, "Covers work recommended by Mr. Hennessy and
5 Mr. Hennessy for collecting data." Evidently -- I
6 don't quite understand why this work would be required
7 for collecting data. I don't know why he couldn't have
8 collected the data before he did the work. But anyway,
9 no, I can't remember what I asked him to do.

10 Q. I'll ask you now to look at Minnesota 51,
11 please.

12 A. Minnesota 51. Okay.

13 Q. Mr. Hennessy, I notice you are not copied on
14 Minnesota 51. Do you have any recollection of seeing
15 Minnesota 51 around the time that it was written?

16 A. I have no recollection of it, no.

17 Q. Did you see Minnesota 51 as part of your
18 witness kit in preparation for your testimony today?

19 A. I probably did. I don't know. I read so
20 many of these things.

21 Q. At the time of Minnesota 51 Mr. Lesher was
22 head of the refining division at Reilly Tar, was he not?

23 A. Correct.

24 Q. This document appears, Minnesota 51, to be
25 written in the course of his duties?

1 A. I think so, yes.

2 Q. I'd like you to turn to page 2 of Minnesota
3 51 to the last full paragraph on the page. Mr. Leshar
4 states that he and Mr. George Reilly observed that the
5 settling basin at Saint Louis Park was in poor
6 condition and that the entire visual site of the ditch
7 flowing from the settling basin along Walker Street was
8 exceptionally poor with tar and oil being quite evident.

9 A. It says the same thing as the letter we
10 looked at previously.

11 Q. Do you have any information to suggest that
12 this observation by Mr. Leshar and Mr. Reilly was
13 inaccurate?

14 A. I have no reason to doubt it or reason to
15 believe it. It's just what he says.

16 Q. Mr. Leshar goes on to say that at the time he
17 observed it the settling basin was full of settled oil
18 and boiler solids. Do you have any reason to -- do you
19 have any information that would suggest that that
20 observation by Mr. Leshar was inaccurate?

21 A. No. The letter we just talked about, the last
22 letter of Mr. Leshar, said the same thing.

23 Q. Finally Mr. Leshar says that the baffles in
24 the settling basin were broken.

25 A. Um-hum.

1 Q. Do you have any information to suggest that
2 that observation was inaccurate?

3 A. No. Again he's already said that in another
4 letter that we just talked about.

5 Q. Do baffles and the type of settling basin
6 that you designed at Saint Louis Park break easily or
7 regularly?

8 A. They shouldn't. They were made out of, I
9 can't remember, four bite tongue and grooved lumber or
10 something like that. I can't remember the exact. I
11 know the general construction. I couldn't tell you
12 exactly what each piece of wood was but they were
13 pretty stout.

14 Q. If a baffle were broken, would that be easily
15 observable from a plan view of the settling basin?

16 A. If a skimming baffle was broken, it would be
17 very easily observable. In fact, it would be very
18 obvious. If a heavy oil baffle were broken and the
19 water was turbid, it would not be observable. However,
20 if the water was clean it would be observable I would
21 think.

22 Q. What would be needed to be done to correct a
23 broken skimming baffle?

24 A. Well, you'd just have to -- it would depend
25 on -- you'd just repair it. That's all. Get new wood

1 of the same dimentions and take the old wood out and
2 put the new wood in.

3 Q. Would it be a simple and inexpensive
4 operation to do?

5 A. I would say it's no great engineering problem
6 to repair a baffle or great maintenance problem to
7 repair a baffle.

8 Q. Could one man do it in an afternoon, say?

9 A. No. One man couldn't do it because the
10 lumber's too heavy. No, one man couldn't possibly do
11 it.

12 Q. How many men would be needed and how long
13 would it take?

14 A. Well, I don't really know, but certainly a
15 crew of four men could do it. Depending on what the
16 damage was I'd say a couple of days.

17 Q. Was it much more complicated to repair a
18 broken baffle in the bottom of a settling basin?

19 A. Yes. Because first thing you'd have to pump
20 the water out and pump the oil out, get the basin
21 emptied before you could repair it.

22 Q. I'd like to turn your attention to page 3 of
23 State Exhibit 51. Mr. Leshor uses the phrase of
24 installing a simple straw baffle. Do you understand
25 him to be referring there to a straw filter?

1 A. Yes.

2 Q. A baffle and a filter would be used
3 interchangeably to describe that?

4 A. Baffle is a poor word. He should have used
5 the word filter, but he's talking about a straw filter.
6 There would be no point to putting a baffle in. Well,
7 I know for a fact that a straw filter was installed.

8 Q. Mr. Lesher finally says that those proposals
9 that he's just mentioned correcting, cleaning the
10 settling basin, cleaning out the oil and tar in the
11 ditch and installing a straw baffle or filter, are
12 slight and simple improvements and should not be
13 considered as steps in an overall solution to water
14 pollution problem at Saint Louis Park. In your opinion
15 would those steps that Mr. Lesher refers to as slight
16 and simple be sufficient to solve the problem of water
17 pollution at Saint Louis Park?

18 A. This was a stopgap measure before we
19 installed an API settling basin and that type of
20 equipment and straw filters and so forth.

21 Q. But these improvements would not be
22 sufficient of their own to solve the water pollution
23 problem at Saint Louis Park?

24 A. They would not be intended to be the final
25 solution of the problem, no.

1 Q. But would they be sufficient on their own to
2 finally solve the problem?

3 A. To finally solve the problem?

4 Q. Yes.

5 MS. CONSTOCK: I believe the witness has
6 answered the question.

7 Q. The witness has not answered the question.
8 The witness has evaded the answer.

9 A. I would say no. Was I evading the answer?

10 Q. I don't know whether you were doing it
11 deliberately, but I think that answers the question.
12 Thank you.

13 A. All right.

14 Q. Was an API separator ever installed at Saint
15 Louis Park?

16 A. No.

17 Q. The Saint Louis Park plant did not shut down
18 until four years after this memo?

19 A. I don't remember the exact year. It was '71
20 or '72.

21 Q. But three or four years after?

22 A. Something like that.

23 (At this time United States Deposition
24 Exhibit 18 was marked for identification by
25 the Court Reporter.)

4'
1 BY MR. HIRD:

2 Q. For the record U.S. 18 is a one page document
3 Reilly date stamp number 223936. It appears to be a
4 memorandum on Reilly Tar and Chemical Corporation
5 stationery from T. E. Reilly to H. L. Finch dated June
6 4, 1968. Mr. Hennessy, I notice that you are one of
7 the carbon copyees on United States 18. Did you
8 receive a copy of United States 18?

9 A. Well, I obviously did, yes.

10 Q. Would United States 18 be a work order to
11 cover the work that you recommended for control of
12 water pollution that was suggested in Mr. White's memo
13 of May 20, 1968, which is State Exhibit 23?

14 A. This is an authorization to spend the money
15 to do the work.

16 Q. Do you note any inconsistencies between the
17 expenditures in United States 18 and the ones proposed
18 by Mr. White in State Exhibit 23?

19 A. Well, Mr. White asked for \$4,043. Mr. Reilly
20 approved it looks like \$4,000. It's been marked over.
21 I think it's \$4,000. So there isn't much of a
22 discrepancy I would say.

23 Q. Are there discrepancies in any items -- are
24 there any items that Mr. White recommended in Minnesota
25 23 that are not authorized in U.S. 18?

1 A. It looks like exactly the same thing to me.

2 Q. Looking at United States 18, I see that cost
3 for Reilly labor are also priced out in the work order.
4 Was that the practice of the company to list out a cost
5 for the labor of its own employees in its work order?

6 A. Yes. Because these employees are on the
7 payroll, and they're going to get paid anyway. So the
8 out-of-pocket expense which means the amount of money
9 the company would have to put out was \$3,650 because
10 these men that are going to be paid \$300, I don't quite
11 understand how 300 and 650 add up to 4,000, but anyway
12 these men that were going to be paid \$300 you're going
13 to have to pay them anyway regardless of what they're
14 working on. So really as far as out-of-pocket money is
15 concerned for maintenance, which I assume this would be,
16 alterations to what we had, there is no use putting
17 that figure in twice. In other words, the total work
18 order is \$4,000. That's how much money the company's
19 going to spend. But the amount that they're going to
20 have to put out for outside labor, contractors' labor
21 and materials is \$3,650. That's what that means.

22 Q. I see. But the Reilly labor is costed out as
23 part of the ordinary practice of the company in
24 preparing the work orders?

25 A. The ordinary practice is you give a total

1 cost of how much the job is going to run. And then if
2 you're going to use some plant labor, after you get the
3 total cost including plant labor, you deduct the amount
4 you're going to pay for plant labor and then you
5 subtract that and you have two figures. One is the
6 total cost of the work order, the amount you're
7 authorized to spend. And the other figure is the
8 amount of outflow, the amount of cash that they have to
9 pay out, that the management has to pay out.

10 Q. But when you're assessing the first figure,
11 you price out specific labor tasks by specific workers?
12 In other words, if you look at U.S. 18 it's a regular
13 practice as part of an operation to say how much the
14 value of Reilly labor spent on a particular job is, for
15 example, install filter repair there is a reference to
16 Reilly Tar of \$300. That's the regular practice to
17 price the labor to do that way?

18 A. Reilly labor. That's correct. Then you
19 deduct at the end because you're not paying -- you are
20 paying out the cash, but it's in a different -- it's
21 part of production and maintenance.

22 Q. Do you see anywhere in United States 18 any
23 reference to any expenditures for repair of the baffles
24 at the oil and water separator?

25 A. Well, he says cleaning separator. I assume

1 that would mean repairing the baffles. In other words,
2 he's going to clean the separator. I assume he's going
3 to repair it also but he doesn't say so.

4 Q. So he doesn't specifically say that there is
5 any cleaning repair of the baffles?

6 A. This work order does not say there is any
7 repair of the baffles and I don't believe the request -
8 he just copied this request is what he did. Mr. White
9 wrote it that way and that's the way Mr. Reilly had it
10 copied.

11 Q. There is no reference to any specific cost
12 placed on the Reilly labor for cleaning the baffles in
13 U.S. 18?

14 A. I don't see any.

15 Q. In repairing the baffles at U.S. 18. I made
16 have misspoke.

17 A. I don't see any specific cost.

18 Q. Thank you. Let me ask you to look now at
19 State Exhibit 19, please.

20 A. Okay.

21 Q. Mr. Hennessy, did you receive a copy of
22 Minnesota 19 on or about the time of its writing?

23 A. Yes, I did.

24 Q. What was Doctor Wheeler's position with
25 Reilly Tar the date of Minnesota 19?

1 A. I believe his title was assistant director of
2 research, but his expertise was in -- well, he was -- I
3 won't say his only -- he was a good chemist but he was
4 also a good engineer. He had two degrees. He had a
5 chemical engineering degree and a doctorate in
6 chemistry.

7 Q. I'd like you to turn your attention now to
8 the final paragraph of Minnesota 19. Here Doctor
9 Wheeler says, "The well is not all rosy," referring
10 here -- Mr. Finch says that, "The well is not all
11 roses." Is he referring to the deep well in the Saint
12 Louis Park property?

13 A. He's referring to the well marked -- I don't
14 see it on there. But the well just to the west of the
15 refinery building.

16 MR. COYNE: Would that be the Republic
17 deep well?

18 A. Let's see if I can find it on here. Trouble
19 is you got too big letters. Yes, that's the Republic
20 deep well, right.

21 Q. You're referring to the Republic deep well on
22 Minnesota Exhibit 9, are you not?

23 A. Yes.

24 Q. Thank you. Mr. Finch goes on to say that,
25 "The well in the past has been bringing the tar

1 substance to the surface in small balls." Would these
2 tar balls coming out of the -- well, let me ask you
3 this. Let me strike the question. Mr. Finch says that
4 the well in the past has brought tar to the surface in
5 small balls. Do you have any information that would
6 suggest that that statement is inaccurate?

7 A. Well, I should have objected to -- well, I
8 didn't even think about it then. But I doubt that it
9 was tar. There was a mixture of oil and sand brought
10 to the surface, right, little balls which were a
11 mixture of oil and sand.

12 Q. Why do you doubt that it was tar? Do you
13 base your doubt on personal observation?

14 A. I base my doubt on the history of the well
15 because documents that you've shown me before and I've
16 commented on stated that we used an air lift in that
17 well up until about just before this pump was installed
18 which was in the mid '50's, wasn't it, I believe.

19 Q. But you never observed anything which Mr.
20 Finch might consider a tar ball that you would consider
21 something else coming from the well?

22 A. I did not personally observe them, no.

23 Q. If these tar balls were coming up from the
24 well as Mr. Finch suggests or if these other oil balls
25 as you suggest, would they be likely to get into the

1 boiler?

2 A. Well, at that time -- at some time that pond
3 was used -- the pond to the south of the refinery was
4 used for boiler feed water. We've already established
5 that there was a four inch line running between the
6 fire pump and the boiler to bring in water at one time.
7 Now, these balls I don't know whether they were settled
8 out. They probably would settle out. They must have
9 been pretty heavy because the oil that I think was in
10 them was a heavy oil even though it was petroleum oil.
11 If my suspicion is correct. Or if it's coal tar oil
12 then it's even heavier yet. So these things would
13 settle out in the bottom of the pond I would think.
14 Now, whether the suction -- I'm not familiar with the
15 suction of the fire pump. But if the suction of the
16 fire pump did not create quite a turbulence in front of
17 the pump, why, I would think that the tar balls would
18 be settled out in the pond. However, I also am sure
19 that the fire pump is located south of the pond. And
20 the effluent end of the pond from the condensers went
21 into the north end of the pond. So you had the whole
22 length of that pond to settle them out. So whether
23 they got in the boiler or not I don't know. But as
24 I've told you before, if they got in the boiler you
25 would know it.

1 Q. But a strong enough pump could pump them out
2 of the pond into the boiler?

3 A. Well, strong enough. If it pumped enough
4 water and depending on the design of the suction, which
5 I have no knowledge of, I had nothing to do with the
6 installation of that pump, I don't know how they put it
7 in, but if there was quite a bit of turbulence in the
8 pond, which I never observed. I've seen the pump
9 running and I never observed any turbulence, but if
10 there were turbulence you could still them up, yes.

11 Q. And they could ultimately be sucked into the
12 boiler?

13 A. Um-hum.

14 Q. Mr. Honnessy, you testified before that it
15 was practice at Reilly Tar to issue work orders from
16 Indianapolis for expenditures above a plant's limitation
17 and that for expenditures below a plant's limitation
18 that the individual plant would tend to notify
19 Indianapolis of the work that it had done and the cost
20 of the work, is that correct?

21 A. The plant manager had to account for all the
22 money he spent, but he could do work up to a certain
23 limit without getting any authorization from the
24 management, that is correct. He could authorize it
25 himself.

1 Q. But he would then have to notify Indianapolis
2 of how the money was spent?

3 A. He had to notify the main office if he went
4 out and bought a stamp. Well, that's ridiculous. Any
5 money that he spent for any reason for maintenance, for
6 purchases, anything, he had to account for. I mean, he
7 wasn't just given a lot of money and told to spend it
8 how he wanted. He had to account for all the money
9 spent.

10 Q. So if the baffles in the oil-water separator
11 were repaired, there would either be a work order
12 issued by Indianapolis or there would be a notice by
13 the plant manager to Indianapolis indicating that
14 baffles were repaired and the cost of the repair?

15 A. He sent in accounting records I think monthly
16 but I don't know. I was never into that part of it.
17 But his accounting records would show so much spent for
18 maintenance, so much spent for supplies, anything,
19 janitorial supplies, light bulbs, whatever, this
20 accounting record would show it. Whether he would say
21 what the maintenance men worked on I rather would doubt
22 that he said we spent \$250 fixing this, we spent \$300
23 fixing a baffle.

24 Q. Well, let's say that the repair of the
25 baffles exceeded the plant limit. There would be a

1 work order issued by Indianapolis --

2 A. That is correct.

3 Q. -- authorizing --

4 A. That is correct.

5 Q. -- the repair of the baffles?

6 A. Yes. That's right.

7 Q. If the repair cost of repairing the baffles
8 did not exceed the limit, what record would there be of
9 the cost of repairing the baffles?

10 MS. COMSTOCK: If you know, Dick.

11 A. If I know. The only record I know is
12 accounting procedures or his accounting report. And
13 how that would be made out -- I doubt that it would be
14 in that great of detail. In other words, he has a
15 maintenance department. He spends so much money. Now,
16 whether or not -- I'm not familiar with his records at
17 all. I don't know how detailed they were.

18 Q. But there would be some record that would
19 refer to it, whether it would break it out or not it
20 would include the cost of repair?

21 A. There would be some record in the accounting
22 department that he spent so much money in a certain
23 month of a certain year, yes.

24 Q. Mr. Hennessy, what is a fire pump?

25 A. A fire pump is a pump used to pump water into

1 fire mains to fire hydrants for fighting a fire.

2 Q. Why was a fire pump used in connection with
3 the cooling pond on the Reilly property --

4 A. There again --

5 Q. -- at Saint Louis Park?

6 A. I think his terminology is not terminology I
7 would have used. But fire pump -- I don't know who
8 named it fire pump. Before city water was in the plant
9 we had certain hydrants near the refinery that were fed
10 by this fire pump, so-called fire pump. The pump was
11 also used for production. It was also a production
12 pump. It was a general service pump you might say.
13 That would have been a better name for it.

14 Q. So it would pump water from the pond to the
15 boiler?

16 A. Yes, that's right. We've already established
17 that, that it did that.

18 Q. Would it also pump waste water to the
19 oil-water separator?

20 A. No. No. This was strictly a water pump. It
21 wasn't a sewage pump. It was a water pump.

22 Q. So there was a separate pump for sewage --

23 A. Oh, yes.

24 Q. -- in connection with the oil-water separator?

25 A. Yes. Um-hum.

1 Q. Could you take a look, please, at Minnesota
2 90?

3 A. Okay.

4 Q. Mr. Hennessy, did you receive Minnesota 90 at
5 or around the time it was written?

6 A. Yes, I did since my name is on it I probably
7 did, un-hum.

8 Q. Mr. Leshar at this time was production
9 manager --

10 A. Correct.

11 Q. -- for Reilly Tar?

12 A. Yes.

13 Q. I'd like you to refer to the fifth paragraph
14 on the first page of Minnesota 90 where Mr. Leshar says
15 that, "The ground around the waste ditch at the Saint
16 Louis Park plant and between the road and the track is
17 quite rough and tar covered." What is the distinction
18 that he's making when he says the road and the track?

19 MS. CONSTOCK: I'm going to object to
20 that as being speculative.

21 Q. What was considered the road at Saint Louis
22 Park?

23 A. I don't know whether he's talking about the
24 entrance to the plant or whether he's talking about
25 Walker Street. I don't know if he would use the term

1 road if he referred to Walker Street. So I really
2 don't know.

3 Q. Would this track be the railroad track?

4 A. Yes, obviously.

5 Q. This would be the area between the railroad
6 track and some outside road?

7 A. And some road.

8 Q. Would you point to where the railroad track
9 would be on Minnesota Exhibit 9?

10 A. Well, I don't know which track he's talking
11 about. But we had a road come in here so there is
12 tracks all along here. I believe that's where the road
13 came in. Then here's Walker Street and there is a
14 track along Walker Street. So it could be either one.
15 But the word road confuses me. If he'd have said
16 street or road then I could have maybe answered your
17 question. If he says road I would guess it was our
18 plant road. I don't know. He doesn't say. No more
19 clues.

20 Q. But the reference to the waste ditch would be
21 the waste ditch past the separator on the Reilly Tar
22 property?

23 A. The waste ditch ran, yes, to the east plant
24 property line and down along the east plant property
25 line and then along the Walker Street.

1 Q. If Mr. Lesher had any information that the
2 ground in the area around the waste ditch and leading
3 from the waste ditch would be rough and tar covered,
4 would you have any information or knowledge to indicate
5 that that observation was inaccurate?

6 A. I wasn't with him. I don't know. He says
7 that in the letter.

8 Q. Could I turn your attention back again to
9 Minnesota 51, I believe? Look at the final complete
10 paragraph on page 2 of Minnesota 51. Mr. Lesher says -

11 MS. COMSTOCK: Excuse me. Can you tell
12 us again where you are?

13 Q. I'm sorry. The final complete paragraph on
14 the second page.

15 MS. COMSTOCK: Second page?

16 A. Waste water handling?

17 Q. Um-hum. Mr. Lesher states that, "The visual
18 site of the waste ditch along Walker Street was
19 exceptionally poor with oil and tar quite evident." I
20 believe when I questioned you before you said that you
21 knew of no information that would suggest to you that
22 that observation was inaccurate.

23 A. That's correct.

24 Q. I notice that two years had passed between
25 the date of Minnesota 51 and Minnesota 90. I notice

1 that there is a difference of two years between
2 Minnesota 51 and Minnesota 90.

3 A. Um-hum.

4 Q. Would the fact that Mr. Lesher has the same
5 observation two years apart indicate that the waste
6 ditch has been cleaned up in that two year period?

7 A. It would indicate one of two things. It
8 would indicate that they cleaned it up and it got dirty
9 again or it would indicate that it had never been
10 cleaned up. So I don't know.

11 Q. If it had been cleaned up and gotten dirty
12 again, what would account for its getting dirty again?

13 A. I don't know. I wasn't there. I don't know
14 whether it was flooding of the basins or what it was.
15 I have no idea.

16 Q. Would one of the causes of the waste ditch
17 getting -- could one of the causes of the waste ditch
18 getting dirty again be the failure of the oil-water
19 separator to operate properly in two years between 1968
20 and 1970?

21 A. Unless the thing was flooded I would say no
22 because he's talking about tar. Tar would be easily
23 settled out. You would have to get the tar clear up to
24 the effluent pipe before it could flow out into the
25 ditch.

1 (At this time United States Deposition
2 Exhibit 19 was marked for identification by
3 the Court Reporter.)

4 BY MR. HIRD:

5 Q. Please feel free to stop at any point and
6 read what has been marked as U.S. 18 (sic) before you
7 answer it.

8 MR. SCHWARTZBAUER: 19.

9 Q. I'm sorry. 19. Mr. Hennessy, I'd like you
10 to take a look first at Minnesota 62. Did you receive
11 Minnesota 62 on or about the date of its writing?

12 A. Since the letter was written to me I
13 obviously received it a day or two after August the
14 13th, 1970.

15 Q. Minnesota 62 refers to a copy of an
16 investigation being enclosed, an investigation of soil
17 conditions at the Saint Louis Park for possible
18 construction of a sewer connection to the city of Saint
19 Louis Park. Do you remember receiving a copy of that
20 investigation report?

21 A. Yes, I do.

22 Q. I show you now United States 19, which is a
23 document extending from Reilly date stamp number 302526
24 through 302538. I ask you whether United States 19 is
25 a copy of that report that was referenced in Minnesota

1 62.

2 MS. CONSTOCK: If you know.

3 A. Well, I believe it is because the report's
4 August the 10th and the letter is August the 13th. I
5 believe this is the report, yes. It says proposed
6 pipeline and separator. Okay.

7 Q. So you received a copy of United States 18
8 (sic)?

9 A. I believe I did.

10 Q. I mean 19.

11 A. Um-hum.

12 Q. Mr. Hennessy, why was this report undertaken,
13 United States 19?

14 A. The report was undertaken because the ground
15 that we were going through with our sewer -- we had to
16 go from where we were going to locate the settling
17 basin to the manhole where we could enter the sewer.

18 Q. Is this the new API settling basin that you
19 were considering installing at Saint Louis Park?

20 A. Correct.

21 Q. Never installed?

22 A. That is correct.

23 MR. SCHWARTZBAUER: Excuse me. Just so
24 we aren't confused, I think Mr. Hird keeps referring to
25 an API separator that you were going to install. In

1 your testimony you referred to an Edens separator.
2 Which one?

3 THE WITNESS: Edens is a trade name of a
4 factory-built separator, but it's based -- I don't know
5 whether -- there again terminology confuses me. I
6 don't know whether Edens could be called a true API
7 separator or not. But it certainly is, if anything,
8 better than the home-built API separator. It's a
9 manufactured piece of equipment, and I believe it is
10 more sophisticated, if anything, or more sophisticated
11 than an API separator.

12 MR. SCHWARTZBAUER: Is that what you're
13 talking about?

14 THE WITNESS: It's the Edens separator,
15 yes.

16 BY MR. HIRD:

17 Q. I believe you testified earlier that an Edens
18 separator was using the basic API separator design.

19 A. Oh, yes.

20 Q. Which is why I referred to it as an API
21 separator.

22 A. With some improvements yes.

23 Q. But Edens is a brand name?

24 A. Edens is a brand name, yes.

25 Q. I'm referring to API too to indicate the

1 variety of separators.

2 A. Okay.

3 Q. Mr. Hennessy, where was it proposed that the
4 Edens or API separator be installed? At what point on
5 the plant property?

6 A. Near the wooden separator that was installed
7 in '41 or '42.

8 Q. As close as reasonably possible to that point?

9 A. Well, I don't know reasonably possible. But
10 it was close to that point, yes.

11 Q. Not more than 10 feet away, for example?

12 A. Oh, I can't say about 10 feet but, say, not
13 more than 50 feet away. You know, 10 feet.

14 Q. Would it be downstream or upstream of where
15 the oil-water separator was located?

16 A. Well, it would be neither. The sewer running
17 into it would run to the two influent pumps that we
18 were going to put in for the new separator. Then it
19 would run out of the separator to the sewer. It would
20 neither be upstream or downstream from the other
21 separators. The old separator was going to be
22 abandoned and filled in as I recall.

23 Q. Then perhaps I can rephrase my question this
24 way. Would it be to the southeast of the current
25 position -- I'm sorry. Would the new API separator be

1 installed to the southeast, to the southwest, in what
2 geographic relationship to the old oil-water separator?

3 A. I would guess it would be to the west, about
4 where it says "sump" on this Exhibit.

5 Q. Where it says sump on Minnesota Exhibit 9?

6 A. Yes. I'm guessing but I think that's where
7 it is.

8 Q. Thank you. Were the soil borings mentioned
9 in the investigation which is U.S. 18, soil borings of
10 the area where the API or Edens separator was going to
11 be installed?

12 A. Well, this is a reason why the soil borings
13 were taken so we would know how much load we could put
14 on the ground there.

15 Q. So these soil borings would be taken roughly
16 in the vicinity of where you were going to locate the
17 new Edens separator on the plant?

18 A. There is a map showing where they were taken
19 in this report.

20 Q. I realize that, but since we don't have the
21 API separator actually installed, it's hard for me to
22 tell from the map where the map shows where you were
23 going to put the separator.

24 A. In the lower left-hand corner of the map you
25 see the office and land.

1 Q. You're referring to page 302531 of United
2 States Exhibit 18 (sic)?

3 A. Yes.

4 MS. COMSTOCK: 19.

5 Q. 19. Yes. I see where there is a reference
6 to office and lab.

7 A. All right. This first boring was 212 feet
8 from the office and lab and it was taken -- you go in
9 line with the site of the office building 212 feet and
10 you reach a point you see the arrowhead on that point
11 and the borings were taken 32 feet beyond that, 100
12 feet, it shows exactly where the borings are.

13 Q. To the southeast of the office lab though? I
14 notice --

15 A. All right.

16 Q. Does that indicate the direction of a line of
17 borings that it would go to the southeast of the office
18 lab building?

19 A. It's going parallel with this track that runs
20 down there. Let's see. Northeast most spur of
21 standard gauge railway.

22 Q. Perhaps we might make it easier if you would
23 take this pencil and mark on Minnesota Exhibit 9
24 exactly where these borings were going to be taken on
25 the Exhibit 9.

1 MR. SCHWARTZBAUER: If you can.

2 A. I'd have to guess. I don't have a scale with
3 me or anything.

4 Q. If you could just draw the lines because I'm
5 a little confused about the direction from the office
6 and lab.

7 A. I believe this is the first standard gauge
8 track. They were taken 38 feet on the office side of
9 the track. There is an office. So they were taken
10 wherever 38 feet is on a line down along here. I
11 assume they followed the track and there should have
12 been a manhole at Walker. Wait a minute. I guess it
13 went straight. Walker Avenue's down here, isn't it? I
14 don't know. Anyway, it went from there to the manhole
15 wherever the manhole is.

16 Q. Could you mark a brown line along Minnesota
17 Exhibit Number 9 indicating the line of the borings
18 that were taken?

19 A. Yes.

20 Q. Would you mark that with an "H", that brown
21 line?

22 A. With an H? My initial?

23 Q. Yes. So that it can be clear for future
24 generations looking at Minnesota 9.

25 A. Future generations, boy. He's planning on

1 making this a long deal.

2 Q. Where on that long brown line that you marked
3 on Minnesota Exhibit Number 9 would the oil-water
4 separator, the API oil-water separator, have been
5 installed or would have been installed elsewhere than
6 on that line?

7 A. It would be on that line.

8 Q. How far down the line?

9 A. Right at the beginning of the line.

10 Q. So it would be installed right up at this
11 point near sump?

12 A. Yes. Which corresponds with what I told you
13 before because here's your present basin. I said it
14 would be to the west of that basin. So I guessed right,
15 didn't I?

16 Q. Why don't we put a mark of some sort right at
17 this --

18 A. X marks the spot.

19 Q. Can you mark "RJH" right at that point on
20 Minnesota Exhibit 9?

21 A. Where's the office building? Office building.
22 I would say that it would be about, I'm guessing, I'd
23 say right about there. Okay.

24 C. Okay. So that's about where it would be --

25 A. Um-hum.

1 Q. -- on Minnesota 9? Thank you very much.

2 A. You're welcome.

3 Q. I'd like to turn your attention to the page
4 in United States Exhibit 19 marked date stamp number
5 302532. Does this page show a description of one of
6 the borings that was taken for Reilly Tar by the Soil
7 Engineering Services in connection with a hook-up to
8 the proposed hookup to the Saint Louis Park water
9 system?

10 A. This is supposed to be a boring is the one
11 which is -- okay. Yes, it is.

12 Q. Does this boring show that the materials
13 dredged up in the first 6 feet of the boring included
14 material which was described as being black with
15 creosote?

16 A. That's what it says.

17 Q. Could you turn then to page 302353 of United
18 States Exhibit 19. Does this show borings, the two
19 that was taken in connection with this boring
20 investigation done by Soil Engineering Services for
21 Reilly Tar?

22 A. That's what it says, uh-huh.

23 Q. Does this boring show that the first four
24 feet of the boring include material that is black with
25 creosote?

1 A. There again that's what it says.

2 Q. Do you have any reason to suggest that this
3 finding by the boring company was inaccurate?

4 A. I wasn't there. I didn't see the borings. I
5 don't know how he took them. So I don't know.

6 Q. I'd like you to turn now to page 302534 of
7 United States Exhibit 19. Does this page show the
8 three that was taken in connection with the
9 investigation --

10 A. Again --

11 Q. -- of soil by Saint Louis Park?

12 A. Um-hum.

13 Q. Does this boring show that the first 8 feet
14 of material dredged up included material that was black
15 with creosote?

16 A. That's the way I would read it.

17 Q. And you have no reason to doubt the accuracy
18 of borings, the one which we previously looked at?

19 A. There again I didn't see them drill it. I
20 don't know how he drilled it. I just know why he
21 drilled it. He wasn't drilling for soil sampling as
22 such. He was drilling for load bearings. So anyway,
23 go ahead.

24 Q. I believe you testified that to your
25 knowledge -- or rather that your belief was that

1 creosote did not seep through soil material lower than
2 two inches. Would these borings suggest that
3 information exists, that would indicate that your
4 belief is inaccurate?

5 A. Well, the occasion I was talking about was
6 where they pulled trams out of a cylinder and water was
7 or creosote oil would drip from the trams because
8 they'd be wet with oil when you pulled them out of the
9 cylinder. And they'd been doing that for a number of
10 years. And we dug a hole and we hit clean sand down
11 two or three inches. Very shallow. Now, I don't know
12 what this black material was here. I don't know what
13 it was. He says it's brown and moist. On this one
14 over here he says it was black and then he says with
15 creosote. Well, I don't know what it was black with.

16 Q. Don't the results of these borings indicate
17 that creosote can descend below a depth of two inches
18 into soil?

19 A. Not to me it doesn't, no.

20 Q. Why would it not suggest that if creosote is
21 found as far down as 8 feet --

22 A. Well, I don't think this guy knew what the
23 black stuff was. He wasn't actually even drilling for
24 that purpose. I don't know what it could have been.

25 Q. So Reilly Tar --

1 A. I wouldn't swear that it was creosote. I
2 don't think he would either.

3 Q. So Reilly Tar hired an independent borer, is
4 that what you're testifying?

5 A. No. There again it's terminology. We hired a
6 borer to test the soil for load bearing. When you test
7 soil for load bearing you bore different types of holes
8 than you do when you're testing for what's down there.
9 This guy -- I didn't see his equipment. I don't know
10 what he used. But normally what they use they use a
11 pipe. I've seen them bore many holes around
12 Indianapolis. And what the well drillers here have a
13 pipe and when they're testing for load bearing they use
14 a pipe and they beat it with a hammer and they count
15 the number of blows. And all they're interested in is
16 what the soil will take at that level, you know, at
17 various -- how deep you have to go with a piling or
18 foundation to reach a certain load bearing. All right.
19 Now, when he puts this hollow pipe on top of the ground
20 and what's on it and goes down about 8 feet and he
21 brings it up, the material in the pipe, he dumps it out
22 then he looks at it. It's all mixed up. So for
23 instance, he says here that on -- this is the four that
24 you had me look at that I'm looking at. He went down
25 two feet and said it was brown and moist. Then he went

1 down 8 feet and said loam, plastic, brown to Pete,
2 black, moist to wet. Then below he says sand and
3 gravel, gray. Well, these are not lines at 7 feet 11
4 and a half inches it's black and 8 feet zero and a half
5 inches it's gray. That's what I'm getting at. He's
6 not sampling at various depth. He's beating the pipe.
7 All right. See, this "BPF" blows per foot. This is
8 what he's doing. It took three blows to put it down
9 the first foot. That's pretty fast. Pretty lousy soil
10 for soil borings. The next he takes two blows to go
11 down a foot. The next one he goes down four blows per
12 foot. Still lousy soil. Then he gets into some fairly
13 good stuff. In other words, 11 feet, 10 feet, 11 feet,
14 11 feet. That's all this guy was interested in.

15 Q. But if he dredged up material going down, say
16 8 feet and found included in that material some
17 substances which were black with creosote, that would
18 be possible then that the creosote would be further
19 down than two inches?

20 A. Yes, it would be.

21 Q. Is creosote readily observable in material
22 that would be dug up out of the ground?

23 A. A good chemist can tell creosote oil from
24 petroleum oil very easily.

25 Q. On-site?

1 A. No. No. No way. No. Nobody's got those kind
2 of eyes that can look at a stain on the ground and say
3 this oil came from here, that oil came from there. Be
4 nice if they did.

5 Q. All of these soil bearings were taken along
6 the ground line that you drew on Reilly Tar Exhibit
7 Number 9?

8 A. That is correct.

9 Q. All of the soil borings referred to in U.S.
10 Exhibit 19?

11 A. Yes. I'm not going to swear to the accuracy
12 of my line, but it's pretty close I think.

13 Q. Why was the API or Edens separator never
14 installed at Saint Louis Park plant?

15 A. Because by the time we were ready to install
16 it the plant was going to close. We knew the plant was
17 going to close, so we didn't want to spend -- well,
18 again I wasn't in on the decision. This is a
19 management decision. But I know the plant was going to
20 close. So there was really -- didn't really make much
21 sense to me to put one in when you're going to close
22 the plant. In fact, the way to stop pollution is close
23 the plant. Then you got zero.

24 Q. Not if the ground water continues to migrate
25 unfortunately.

1 MR. HIRD: Off the record.

2 (At this time a discussion was held
3 off the record.)

4
5 (At this time a rocess was held.)

6
7 (At this time United States Deposition
8 Exhibit 20 was marked for identification by
9 the Court Reporter.)

10 THE WITNESS: Okay. I read it. As much
11 as I could.

12 BY MR. HIRD:

13 Q. Mr. Hennessy, I've shown you what has been
14 marked United States Exhibit 20, which is a four page
15 document consisting of Reilly Tar Date stamp numbers
16 200975 through 200978 which was provided to us by Mr.
17 Schwartzbauer in compliance with Magistrate Boline's
18 order. Mr. Hennessy, can you identify for us what U.S.
19 20 is?

20 A. U.S. what is?

21 Q. U.S. 20.

22 A. Oh, this document?

23 Q. Yes.

24 A. I believe it is a request for a work order
25 written by Paul White for the Saint Louis Park plant.

1 Q. Do you believe that it was written on about
2 October 30, 1968?

3 A. That's what it says, yes.

4 Q. Did you receive this request for a work order

5 A. I usually receive requests for work order,
6 but I don't see my name on this one. I see is S. C.
7 Boyle. There is a name up there that is not my name
8 but I can't read who's. Maybe it says Saint Louis Park
9 I don't know.

10 Q. Let me turn your attention to page 200978 of
11 U.S. 20. Mr. White there refers to problems with the
12 existing tanks.

13 A. Existing tanks? He does say existing tanks.

14 Q. Did Mr. White ever discuss with you
15 difficulties with the existing tanks at Saint Louis
16 Park?

17 A. I don't remember Mr. White discussing it with
18 me, but I had heard about it, yes.

19 Q. In and around October 1968?

20 A. Well, I can't remember the date.

21 Q. About that time?

22 A. Yes, somewhere around there.

23 Q. What problem was there with the existing
24 tanks?

25 A. The tanks were buried. He calls them

1 existing tanks. I call them working tanks. He's
2 talking about the buried tanks just to the north of the
3 refinery obviously.

4 Q. These are working or day tanks that we've
5 previously discussed?

6 A. Correct, yes. That's your understanding?
7 That's what I got out of it. He says that the water
8 pressure tries to pop the tanks from the ground and
9 water gets in the tanks. Well, this is true. If the
10 water level is running across the ground, the water
11 pressure at the leak would be greater than the oil
12 pressure and the leak would be into the tank. He says
13 he has problems with water getting into the tanks thus
14 causing additional water pollution of our oils. "This
15 has been further processed in our separator before
16 leaving the plant. This has to be further processed in
17 our separator before leaving the plant." What he means
18 by that is he has to put it in a settling tank, settle
19 the water out and then put it through the separator.

20 Q. Is what Mr. White says here on page 200978 of
21 U.S. 20 consistent with your problems with the working
22 tanks about October 1968?

23 A. Well, it was consistent with the problem
24 before we removed them, yes.

25 Q. How would the leaks in the tanks in the

1 piping add to water pollution?

2 A. Well, if you had a leak in the piping to the
3 tank to the top of the tank, you would get water
4 flowing into the tank from the ground. All right. Now,
5 that water was separated in a separating tank and then
6 sent to the separator so the separator had to handle it.

7 Q. But that water would carry oil to the
8 separator?

9 A. Well, when you settle it in a settling tank
10 you don't get 100 percent of the oil out and you don't
11 get 100 percent of the oil out in the separator either.
12 But you get an awful lot of it out. So he would pump
13 it to -- I believe he even says that here. You pump it
14 to a settling tank. Then he pumps it to the separator.

15 Q. But it would carry --

16 A. This increases the amount of oil or water
17 going through the separator, contaminated water going
18 through the separator.

19 Q. Contaminated with oil?

20 A. Contaminated with oil. That's why the
21 separator's there, yes.

22 Q. Based on your information at the time, is Mr.
23 White's statement accurate that these tanks are old and
24 have several leaks?

25 A. Well, I believe they had leaks in them and

1 old, as I testified before, I told you before, they
2 were installed about 1924, '23, somewhere around in
3 there.

4 (At this time United States Deposition
5 Exhibit 21 was marked for identification by
6 the Court Reporter.)

7 BY MR. HIRD:

8 Q. Mr. Hennessy, I show you what has been marked
9 United States Exhibit 21, which is a one page document,
10 Reilly date stamp number 200697. It appears to be a
11 memorandum on Reilly Tar and Chemical Corporation
12 stationery from T. F. Reilly to Herb Finch dated
13 September 5, 1969. Mr. Hennessy, I notice you are
14 carbon copied on U.S. 21. Did you receive a copy of
15 U.S. 21 on or about the date it was written?

16 A. I probably did, yes.

17 Q. I notice a reference in the opening paragraph
18 of U.S. 21 to a work order to improve the quality of
19 water used in the boiler at the Saint Louis Park plant.
20 Do you recall what problems Reilly was experiencing
21 with the quality of the water in its boiler at the
22 Saint Louis Park in September 1969?

23 A. Since he is installing the water softener and
24 deaerator and feed water pumps, and regulators, I would
25 say that the problem was inadequate treatment of the

1 boiler in that there was excessive scale. This is what
2 this type of equipment would correct.

3 Q. What would cause excessive scale?

4 A. The magnesium and calcium. Calcium and
5 magnesium salts would if you didn't have an external
6 water softener and you used internal treatment in the
7 boiler. The calcium and magnesium salts would come out
8 in the boiler in the form of floc. They'd settle in
9 the drum and have to be blown out with boiler blow down.

10 Q. What was the source of water for the boiler
11 in September 1969 at Saint Louis Park?

12 A. My guess is that city water was in by then.
13 That's a guess. I don't know when it was put in, but I
14 believe was in by -- I'm sure it was in by then.

15 (At this time United States Deposition
16 Exhibit 22 was marked for identification by
17 the Court Reporter.)

18 BY MR. HIRD:

19 Q. Mr. Hennessey, United States Exhibit 22 for
20 the record is a one page document. Reilly date stamp
21 number 306299. It appears to be a letter by R. J.
22 Boyle to R. A. Brewster of Aetna Casualty and Surety
23 Company dated October 21, 1969. Mr. Hennessey, did you
24 ever receive a copy of United States 22?

25 A. I don't know. My name is not on here. Well,

1 my name is in the body of the letter. I probably did
2 receive a copy. I don't know.

3 Q. Was Mr. Boyle at this time a Reilly employee?

4 A. Yes, he was.

5 Q. What was his position?

6 A. He was in charge of insuring all the plants,
7 buying all the insurance.

8 Q. Was United States 22 written by Mr. Boyle in
9 the course of his ordinary duties as a Reilly employee?

10 A. Yes, um-hum. I notice he's got a title.
11 That's unusual. Secretary.

12 Q. Well, maybe he uses a title when he writes to
13 somebody outside the company.

14 A. Could be.

15 Q. In United States 22 Mr. Boyle refers to
16 certain recommendations made by Mr. Brewster and his
17 company, Aetna Casualty. Do you recall those
18 recommendations?

19 A. No, I don't recall those exact
20 recommendations, but this happened quite frequently and
21 we'd -- go ahead.

22 Q. Mr. Boyle refers to a specific recommendation
23 of diking tanks. Do you recall Mr. Brewster ever
24 recommending the diking of tanks?

25 A. I recall that the insurance company in

1 several instances have recommended diking of tanks. I
2 don't recall -- I couldn't swear that Saint Louis Park
3 tanks -- that the insurance company recommended we dike
4 them until I saw this letter. This letter says that
5 they recommended diking tanks.

6 Q. What tanks did the insurance company
7 recommend diking? What type of tank?

8 A. I don't remember. But obviously they would
9 be above-ground storage tanks.

10 MS. CONSTOCK: For clarification are you
11 talking about Saint Louis Park specifically?

12 MR. HIRD: Well, for clarification the
13 witness has testified that he remembers recommendations
14 in general. So I'm asking about types of tanks since
15 Reilly Tar had various different types of tanks at
16 various different plants. But the same generic tank
17 roots would appear in several different plants. In
18 other words, tar storage tanks, there would be working
19 tanks in several different plants.

20 MS. COMSTOCK: But the questions are
21 general in relation to Reilly plants not Saint Louis
22 Park specifically?

23 Q. Right. What types of tanks at the various
24 Reilly plants do you recall Aetna recommending that
25 diking be installed?

1 A. The above-ground storage tanks.

2 Q. What was the reason for their recommendation?

3 A. The reason for their recommendation is that
4 they're used to dealing with the oil industry and when
5 one of those -- if there is a fire in a tank -- I have
6 to stop and think now. If there is a fire in a tank,
7 they want tanks spaced a certain distance apart and
8 they want dikes that will hold the volume of the
9 largest tanks plus I think one-half the volume of the
10 next tank. I forget the exact recommendation they made.
11 But it's that type of thing. So the dike must be
12 incombustible like made out of earth. They liked
13 earthen dikes. The purpose of this is to prevent
14 flaming liquids from escaping the area and setting the
15 rest of the plant on fire, getting out into the public
16 railways or streets, preventing flowing liquid from
17 getting out in public streets.

18 Q. When you use the phrase "storage tanks", do
19 you mean the tanks that were used to store the various
20 cuts after the tar refining distillation process was
21 completed?

22 A. Okay. Go ahead.

23 Q. Or do you mean the storage tanks to store the
24 tar when it first comes into the plant?

25 A. I believe their recommendation was to dike

1 every tank every so many gallons. I don't remember.
2 Say 50,000 gallons and up they wanted those tanks diked.

3 Q. So it would be both the tanks that would hold
4 the tar when it came into the plant and the tanks that
5 would hold various cuts after the refining process was
6 completed?

7 MS. CONSTOCK: If you know.

8 A. Well, I don't know what was in the tanks, but
9 I think they went on size rather than what was in them.

10 Q. So basically any tank of a certain size that
11 contained tar products?

12 A. I'm talking about their recommendations, yes.
13 Anything except any combustible material.

14 Q. Why did Reilly not follow their
15 recommendation?

16 A. In the first place we didn't agree with their
17 recommendations. We didn't think it would increase the
18 safety. In fact, we think it would decrease it in our
19 case. Plus the fact that these insurance
20 recommendations were based on the API code for building
21 storage tanks which was written about 1965. This plant
22 was built in 1922. And in order to follow-up their
23 recommendations we would have had to remove all the
24 tanks, remove a lot of tanks, and relocate them and
25 then dike them. This would have been you might say

1 just starting over on your tank farm.

2 Q. So compared to the standards adopted by the
3 API in 1965, the Saint Louis Park plant was primitive
4 and not in compliance with the safety standards
5 proposed by the API?

6 MR. SCHWARTZBAUER: You're talking about
7 fire standards?

8 A. Pardon?

9 Q. I said safety standards.

10 MR. SCHWARTZBAUER: I asked if he's
11 talking about fire standards. Your question is
12 ambiguous.

13 Q. Let me rephrase.

14 A. These spacings and diking had to do with fire,
15 that's correct. That's what they had to do with.

16 Q. So compared to the fire standards proposed by
17 API in 1965, the Saint Louis Park far storage area was
18 not in compliance with those standards?

19 A. Well, since the standards to my knowledge
20 were written in the '60's and the plant was built in
21 teens and the '20's, there is no way they would comply
22 with something written in early 1960's or so, no.
23 That's right. They did not.

24 Q. I'm sorry?

25 A. They did not comply with those later

5:
1 recommendations of the API.

2 Q. Did the API in the '65 standards cover more
3 than fire safety standards?

4 A. They covered everything. They covered
5 electrical, they covered a van entering a tank to clean
6 it. They covered how close you could put a tank to the
7 property line. These standards were all written for
8 petroleum refineries.

9 Q. Was the Saint Louis Park facility in
10 compliance with these standards generally?

11 A. Some of them, yes, and some of them no. The
12 spacing of tanks certainly was not.

13 Q. What other standards was the Saint Louis Park
14 not in compliance with?

15 A. Not in compliance? I think we're in
16 compliance on electrical. I wouldn't know because
17 there is a whole list of things that petroleum
18 refineries do that they had standards for. Most of
19 them didn't even apply to us.

20 Q. When was an air scrubber installed in the
21 Saint Louis Park plant?

22 A. For what purpose?

23 Q. To scrub the air pollution.

24 A. Well, there was one installed in the '20's.
25 Of course, I wasn't there. I have no firsthand

1 knowledge of it. There were scrubbers installed in the
2 '50's. There were scrubbers installed in the '60's.
3 You know, scrubbers covers a lot of territory. Did I
4 answer your question? I don't know. I'm trying to
5 answer it. I don't understand the question, but I
6 tried to answer it.

7 Q. Perhaps I'm not clear. As I understand
8 scrubber, it is a piece of equipment used to eliminate
9 particulates from air pollution.

10 A. That's correct. Yes, that's right.

11 Q. Is it your testimony then that there was
12 various series of air scrubbers used at the Saint --

13 A. At various places at various times for
14 various processes, yes.

15 Q. Where would the scrubber water discharge to?

16 A. Well, of course, '28 I can't tell you.

17 Q. During the time of your familiarity of the
18 plant would the scrubber water ultimately discharge
19 into the oil-water separator we've been discussing?

20 A. It would eventually, yes, it would. But I'm
21 a little vague here, not that I'm purposely vague, but
22 I'm trying to recall. The scrubber I think you're
23 referring -- are you referring to a certain particular
24 scrubber, a particular job?

25 Q. No. I've been under the impression that there

1 was a scrubber and I was not clear as to when it was
2 installed. So if you can clarify it to me then when
3 the scrubber was installed.

4 A. You probably are talking about one that Mr.
5 Justin installed whenever he was at the plant which was
6 probably right after Mr. White left. This is probably
7 the scrubber that you're talking about. I'm not sure.

8 Q. Would the water used in that scrubber be
9 discharged into the settling basin?

10 A. We've installed so many scrubbers I'm vague.
11 Some of the scrubbers used water. Some used oil. I'm
12 under the impression that Mr. Justin's used water.

13 Q. If that is the case it would discharge into
14 the oil-water settling basin?

15 A. Yes.

16 (At this time United States Deposition
17 Exhibit 23 was marked for identification by
18 the Court Reporter.)

19 BY MR. HIRD:

20 Q. For the record U.S. 23 is a two page document.
21 Reilly date stamp numbers 301867 and 301868 and appears
22 to be a memorandum from W. R. Wheeler to H. L. Finch
23 dated December 8, 1969. Mr. Hennessy, I notice you are
24 carbon copied on United States 23. Did you receive a
25 copy of United States 23 on or about the time it was

1 written?

2 A. Yes, I did.

3 Q. If I could turn your attention to paragraph 3
4 on the first page of United States 23, there is a
5 reference there to a scrubber at Saint Louis Park plant.
6 Was that the scrubber we were discussing before as the
7 one that Mr. Justin may have installed?

8 A. I don't know. I really don't. But Mr.
9 Justin I don't believe was even there at that time, was
10 he? I don't know when Mr. Justin went to the plant.
11 But anyway, go ahead.

12 Q. Do you know whether a scrubber was used at
13 the plant on or about December 1969 to remove oil and
14 solids from air pollution?

15 A. I'm sure a scrubber was there, yes.

16 Q. To remove oil and solids from air pollution?

17 A. Yes, um-hum.

18 Q. Would those oils and solids be in the water
19 stream that would exit from the scrubber?

20 A. No. The solids would wash with the oil. The
21 solids would be naphthalene is what they would be.
22 They would be dissolved in the oil and carried out to a
23 receiver.

24 Q. Would the water go with the oil out to the
25 water receiver or just the oil independently?

1 A. The water would go out, yes.

2 Q. So the water would go out with the oil and --

3 A. Let me -- okay. Let me clarify this. As I
4 picture that scrubber, it was a horizontal tank with
5 baffles in it. I believe this is the scrubber that we
6 had at that time. The oil would settle out on the
7 bottom and the water would come off the top. Now, of
8 course, the oil isn't totally free of water and the
9 water isn't totally free of oil. But the water would
10 go out. The contaminated water, contaminated with oil,
11 would flow out of the scrubber that is correct.

12 Q. And ultimately down to the settling tank?

13 A. That is correct, yes.

14 Q. Which pieces of equipment was the scrubber
15 used in connection with what air exhaust was it
16 scrubbing?

17 A. The air exhaust from the condenser pans at
18 the tar stills.

19 (At this time United States Deposition
20 Exhibit 24 was marked for identification by
21 the Court Reporter.)

22 BY MR. HIRD:

23 Q. Mr. Hennessy, I show you a document which has
24 been marked United States Exhibit 24 which is a one
25 page document date stamped 307544, appears to be a

1 memorandum from C. F. Leshar to W. A. Justin dated
2 September 4, 1970.

3 MS. COMSTOCK: I'm not sure the witness
4 has had a chance to read it.

5 A. Yes, I read it.

6 MS. COMSTOCK: All right.

7 Q. Mr. Hennessy, I notice that you are copied on
8 the bottom of United States 24. Did you receive a copy
9 of United States 24?

10 A. I'm sure I did since I was listed, carbon
11 copied there.

12 Q. Why did Reilly ask for a pollution survey of
13 Saint Louis Park from Pollution Curbs, Inc.?

14 A. I don't know. I don't know anything about
15 Pollution Curbs, Inc. I never dealt with them. I
16 don't know whose idea it was to -- he says, "I have
17 your memorandum." Must have been Mr. Justin's idea.
18 But why he wanted to do it I don't know.

19 Q. Toward the close of the document United
20 States 24 Mr. Leshar states he is sending a copy to Mr.
21 Hennessy for his information and possible questions.
22 Do you recall ever questioning Mr. Justin about the
23 activities of Pollution Curbs, Inc.?

24 A. I don't recall discussing Pollution Curbs
25 with Mr. Justin or anybody else to be honest about it.

1 Q. Do you know whether Mr. Justin was seeking
2 outside consultants to assist him in doing a survey of
3 air pollution at Saint Louis Park or water pollution at
4 Saint Louis Park at this time?

5 A. Let me read the letter and see if I can
6 figure it out. I don't really know.

7 Q. Well, --

8 MS. COMSTOCK: That's an answer.

9 Q. Well, if you don't know I don't need you to
10 speculate.

11 A. Okay.

12 (At this time United States Deposition
13 Exhibit 25 was marked for identification by
14 the Court Reporter.)

15 BY MR. HIRD:

16 Q. For the record United States Exhibit 25 is a
17 one page document, Reilly date stamp number 302748. It
18 appears to be an October 7, 1970 memorandum from T. J.
19 Ryan to R. J. Hennessy. Mr. Hennessy, do you recall
20 receiving a copy of United States 25?

21 A. Yes, I do.

22 Q. There is a reference in United States 25
23 about you visiting the Saint Louis Park plant in 1970.
24 Do you recall ever visiting the Saint Louis Park plant
25 in 1970?

1 A. I do not recall it, but if anybody from the
2 engineering department visited, it would be someone I
3 sent. And I don't recall who it would have been.

4 Q. Would this -

5 A. I did not visit the plant, correct.

6 Q. Would this visit be in connection with the
7 proposed installation of the Edens separator?

8 A. If I sent someone that's what it would be for,
9 yes.

10 (At this time United States Deposition,
11 Exhibit 26 was marked for identification by
12 the Court Reporter.)

13 MR. HIRD:

14 Q. For the record United States Exhibit 26 is a
15 one page document, Reilly stamp 100092 and appears to
16 be a January 12, 1971 memorandum from R. J. Hennessy to
17 T. E. Reilly.

18 A. Yes. I'm sorry.

19 Q. I just wasn't sure whether you had read the
20 document.

21 A. Yes, I read it.

22 Q. Mr. Hennessy, did you write United States
23 Exhibit 26?

24 A. Yes.

25 Q. Mr. Hennessy, does United States 26 set forth

54
1 your estimate as of its date as to the cost of
2 installing an Edens separator at the Saint Louis Park
3 plant?

4 A. Yes. This is an estimate for doing the job.

5 Q. Do you have any reason now to believe that
6 you were inaccurate in your estimate back on January 12,
7 1971?

8 A. No.

9 Q. The total estimated figure I believe for the
10 installation of the Edens separate was \$87,410, is that
11 correct?

12 A. That's, yes, what it looks like.

13 Q. You have no reason now to question that total

14 A. No. My estimates were accurate.

15 C. Good. That's all I needed to know about that
16 document.

17 (At this time United States Deposition
18 Exhibit 27 was marked for identification by
19 the Court Reporter.)

20 BY MR. HIRD:

21 Q. For the record United States Exhibit 27 is an
22 8 page document, date stamp numbers 302408 through
23 302415. It appears to be a March 23, 1971 memorandum
24 written on Reilly Tar and Chemical Corporation
25 stationery from R. J. Hennessy to P. C. Reilly.

1 A. Yes. That's right.

2 Q. Mr. Hennessy, did you write United States 27?

3 A. Yes, I did.

4 Q. Why did you write United States 27?

5 A. The Army wanted us to fill out some forms.
6 The forms were not yet available when this was written.
7 But evidently we had a discussion and I wrote the
8 status of waste disposal in our various plants.

9 Q. Were the forms that the Army wished you to
10 fill out forms in order to obtain a discharge permit
11 for waste water at the various Reilly plants?

12 A. The forms were information for the Army to
13 decide whether or not to give you a permit to discharge
14 into a navigable stream, that's correct.

15 Q. That was the Army Corps of Engineers?

16 A. Army Corps of Engineers, right.

17 Q. If I could turn your attention to page 4 of
18 United States Exhibit 27 and ask you to review the
19 first two paragraphs under the heading Saint Louis Park.
20 Do those two paragraphs accurately describe the waste
21 water disposal system in existence at Saint Louis Park
22 at the time when United States 27 was written?

23 A. I think so. The waste water from the plant
24 flows through primary oil separator, that's accurate.
25 Flows from there to a straw filter to plant drain.

1 Storm water falling in the area. That's rain falling
2 in the area served by the drain enters and combines
3 with plant waste. We've already talked about that.
4 The manufacturing area. The plant drain discharges
5 into another straw filter. We talked about that.
6 Water leaves the south end of the property, the ponding
7 area between Walker Street and Highway 7. We talked
8 about that. In addition to above water separated out
9 of the tar and the tar cistern is allowed to flow over
10 the ground to Walker Street. I think we talked about
11 that. This contaminated waste then flows in the road
12 ditch along Walker Street 500 feet to the place where
13 it merges with the remainder of the plant effluent.
14 Okay. It does not run through a straw filter or
15 settling basin. Plans for combining all plant waste,
16 treating it in an oil-water separator, discharging the
17 water to the city sewer and reclaiming the oil have
18 been drawn. The sanitary sewage would also be
19 discharged to the city sanitary sewer. A discharge of
20 storm water on plant property from streets to the east
21 and west pose a special problem at this location. Okay.
22 We've talked about all these things and it's accurate.

23 (At this time United States Deposition
24 Exhibit 28 was marked for identification by
25 the Court Reporter.)

1 BY MR. NIRD:

2 Q. For the record United States 28 is one page
3 document, date stamp number 300981 and appears to be a
4 January 10, 1972 memorandum from R. J. Hennessy to R.
5 J. Boyle.

6 A. Yes. Right.

7 Q. Mr. Hennessy, did you write United States
8 Exhibit 28?

9 A. Yes, I did.

10 Q. There is a reference in United States Exhibit
11 28 to a Minnesota water Pollution Control Agency report
12 dated April 16, 1970 showing a substantial increase in
13 suspended solids, suspended volatile matter, turbidity
14 and BOD in the waters below the Reilly Tar Saint Louis
15 Park plant has compared with the waters upstream from
16 that plant. Do you have any information to suggest
17 that that report would have been inaccurate?

18 A. I have no information suggesting this report
19 is inaccurate, but I have information indicating that
20 it did not come from our plant.

21 Q. What information do you have indicates that
22 these findings were not caused -- these findings of
23 increased pollutants were not caused by your plants?

24 A. About 1930, I don't remember the date, '34, '3
25 or somewhere in there they built a road through there

1 and they excavated through the bog and they went down I
2 don't know how many feet, but it was pretty far down
3 until they hit usable foundation for the road. Then
4 they built a big fill. There is no opening under this
5 fill for water to go to Minnehaha Creek or whatever the
6 creek is. Everybody at Saint Louis Park that I talked
7 to told me there was no way water could get into
8 Minnehaha Creek.

9 Q. Did you ever --

10 A. Since the time this road was built.

11 Q. Did you ever observe for yourself water
12 coming up against this fill and not proceeding on to
13 Minnehaha Creek?

14 A. No. Because the only time I ever walked down
15 there and saw it was after the fact. I mean, after the
16 plant had been raised and Saint Louis Park had built
17 some buildings on it. So I can't say that I saw that
18 being stopped by our effluent. But I did see the road
19 and I saw the fill.

20 Q. When was the visit to Saint Louis Park
21 following the demolition of the plant?

22 A. I couldn't say.

23 Q. Was it within the last 5 years or was it
24 shortly after the plant closed?

25 A. I think it was after I returned from Belgium

1 which was in 1975 or '76. I can't remember the date.

2 Q. Why did you go to Saint Louis Park in 1975 or

3 A. To talk to Mr. Reiersgord.

4 Q. In what connection were you talking with Mr.
5 Reiersgord?

6 MS. CONSTOCK: I want to object to that.

7 MR. HIRD: Miss Comstock, I just want --

8 MS. CONSTOCK: That would be privileged
9 information.

10 MR. HIRD: All I'm trying to find out is
11 whether it was in connection with the privileged
12 proceedings. That's all the witness has to say.

13 MS. CONSTOCK: All right.

14 A. It was in connection with the privileged
15 proceedings. If that's the term you use.

16 Q. Privileged conversation.

17 A. Okay. Yes.

18 Q. At that point I won't question further.

19 (At this time United States Deposition
20 Exhibit 29 was marked for identification by
21 the Court Reporter.)

22 BY MR. HIRD:

23 Q. United States Exhibit Number 29 is a one page
24 document, date stamp number 300916 and has a heading
25 "Questionnaire" and a signature line in which the

1 signature "R. J. Hennessy" is written. Mr. Hennessy,
2 did you write United States Exhibit 29?

3 A. I signed it. That's my signature so I guess
4 I wrote it.

5 Q. What was United States 69 (sic) intended to
6 indicate?

7 A. Is it 69 or 29?

8 Q. 29. Thank you very much. What was United
9 States 29 intended to indicate?

10 A. I believe this was very preliminary
11 information for the Army. I believe this is an Army
12 questionnaire and, of course, they got much more detail.
13 They were just getting started on this thing then. I
14 don't know why they wanted such sketchy information but
15 they did.

16 Q. Do the X's in United States Exhibit Number 29
17 indicate types of waste water being discharged by the
18 Saint Louis Park plant?

19 A. Yes.

20 Q. Do the X's in the row marked "settling pond"
21 open" indicate that those types of water were
22 discharged into the settling pond?

23 A. Yes, they do. Let me read it again to
24 refresh my memory. Process water, clean up water,
25 boiler blow down. I said boiler blow down was in the

1 settling pond. I thought we took it out of there.
2 Storm water from parking lots and streets. Well, this
3 I put an X there because rain water -- well, all right.
4 Rain water that falls over this manufacturing area went
5 through the settling pond, as I said before.

6 Q. So you --

7 A. Storm water from roof drains. That goes
8 there too. All right.

9 Q. So you intended to indicate by United States
10 29 that processing water, clean up water, boiler blow
11 down or condensate, storm water from the parking lots
12 and storm water from the roof drains were all going
13 into the settling pond or settling basin?

14 A. Yes. Now, from parking lots and streets, I
15 didn't know what to do about that. This is a long time
16 ago. But I believe I put that X there because we did
17 let rain water, as I said before, from the
18 manufacturing area, the wood machining area, let's call
19 it that, and the treating cylinder and the boiler room,
20 rain water that fell in that small area, why, those
21 building where it did go through the settling pond.
22 But rain water from where people parked their cars did
23 not go through.

24 Q. Why do you mark then that rain water from
25 where people park their cars did go through the

1 settling basin?

2 A. The only reason I can say that I marked it is
3 because the questionnaire which is very general isn't
4 very accurate in the description of our water. But we
5 did have water going through the settling pond and I
6 don't know where to put the X so I figured that was the
7 closest thing to it. Does that make sense?

8 Q. Does United States Exhibit 29 refresh your
9 recollection that boiler blow down did indeed go
10 through the settling pond?

11 A. I'm surprised to see that there. I said it
12 did, but it used to, but it didn't at this time I'm
13 sure.

14 Q. Even though you marked that it did do it at
15 that time?

16 A. Um-hum.

17 Q. So you were inaccurate in preparing --

18 A. I hate to admit it but --

19 Q. -- United States 29?

20 A. But I think I was inaccurate.

21 Q. Why would you be inaccurate about boiler blow
22 down?

23 A. I don't know. Because I was involved in
24 putting the elevated tank in and bypassing the settling
25 basin with it. So don't ask me. My brains must have

1 been gone that day I guess.

2 Q. Mr. Hennessy, do you recall answering certain
3 Interrogatories in connection with --

4 A. Yes, I do.

5 Q. -- the suit brought by the State of Minnesota
6 in State court in Minnesota?

7 A. Yes.

8 Q. Do you remember if you answered Interrogatory
9 number 20? Why don't I give you mine that I marked.

10 A. All right.

11 Q. Mr. Hennessy, in response to Interrogatory 20
12 where the State asked you what safeguards were used in
13 order to prevent the disposal of coal tars that was
14 transferred to storage at the site, you mention that
15 the most important methods of prevention of disposal
16 was, quote, "precautionary operating practices without
17 which no disposal prevention method will work," close
18 quote. What did you mean by precautionary operating
19 practices?

20 A. I meant that the most effective method of
21 prevention of contaminated disposal was to eliminate it
22 as much as possible at its source. In other words,
23 there are two things you can do. First of all, operate
24 the plant in such a manner that there is a minimum of
25 contamination. And the second thing you can do is at

1 the various areas of the plant you want to separate out
2 any contamination while it is still very concentrated.
3 In other words, if you have 10 gallons of oil and 10
4 gallons of water, all right, you've got to treat 20
5 gallons of material. If you let the 10 gallons of oil
6 and 10 gallons of water flow into 100 gallons of water
7 now you've got 110 gallons of material to treat. So
8 what you want to do is you want to eliminate the
9 contamination at the source as much as possible.

10 Q. What was done at the Saint Louis Park
11 refinery in the way of a precautionary operating
12 practice to eliminate pollution at its source?

13 A. We put in settling tanks, a settling tank.
14 We put in settling tanks at the treating plant. We had
15 settling tanks. We've already discussed it. We even
16 found the size and construction of the settling tank at
17 the byproducts building. This was to catch the major
18 part of the oil, settle it at the source. In other
19 words, it would have been a big mistake to put all this
20 contaminated water into one place and then try to
21 settle it.

22 Q. But if brand new water mixed with this
23 contaminated water, then the total water flow would
24 become contaminated?

25 A. Oh, yes. Sure.

1 Q. That would make the problem even more
2 difficult --

3 A. Yes.

4 Q. -- to uncontaminate the water?

5 A. Correct.

6 Q. You don't remember any other specific
7 precautionary operating practices that were conducted
8 at Saint Louis Park which you haven't discussed with us
9 today and the proceeding few days?

10 A. At one time, my memory, at one time we did
11 build some trenches around some tanks to carry off
12 water. But I can't tell you now where the trenches
13 went. We did this because the water got so high it
14 actually floated a tank at one time. That's all I
15 remember. It was an incident that I recall that makes
16 me remember we did this.

17 Q. Which type of tanks were these? Were these
18 working tanks, tar storage tanks?

19 A. They were vertical tanks. If you have a
20 vertical tank, say a big 40,000 gallon tank, and you
21 have 6 feet of tar or oil or water, anything in it, it
22 won't float. But if you've got that tank empty and you
23 get a flood in the plant, it's only going to take about
24 6 inches of water to float it. You're going to break
25 pipes at the bottom of the pipe. You're going to break

1 your steam lines to the coils. It causes all kinds of
2 problems. So we tried to trench some of these so that
3 the water, just in the event of a catastrophic flood,
4 why, rain water would be carried away. Of course,
5 flood waters could not.

6 Q. What were vertical tanks used for?

7 A. Those tanks that I'm talking about now were
8 at the treating plant. They were used for the treating
9 operation.

10 Q. They stored creosote before it was used in
11 the treating procedure?

12 A. They stored creosote, creosote tar solutions
13 and tar. Depending on, you know, as I've mentioned
14 before, we had to treat to the customer's
15 specifications. He would tell us what he wanted us to
16 treat with and how he wanted us to treat it, when he
17 wanted us to ship it. We followed his instruction.

18 Q. Did the trenches remain in existence or did
19 they only exist for a short period of time?

20 A. As I say, that's a long time ago. I don't
21 know how long they remained.

22 Q. You don't recall when they were installed?

23 A. They were installed shortly after one of the
24 tanks was lifted now by water.

25 Q. Would that be in the '60's?

1 A. Either the '50's or '60's. I don't remember.
2 It wasn't a major operation to do this. It was
3 something we did and that was it.

4 Q. Mr. Hennessy, could you turn your attention
5 to Interrogatory number 63 and your response to it?

6 A. Number 60?

7 Q. 63. And your response to it. It's on page
8 49 -- or rather it would begin on 47.

9 A. Okay.

10 Q. I would suggest you take your time and look
11 at the question and the answer, please.

12 A. All right.

13 Q. Mr. Hennessy, based on our discussion of the
14 oil-water separator over the past few days, would you
15 care to make any changes in your answer to
16 Interrogatory 63?

17 A. Well, I'm very interested in the figures.
18 This says the settling basin was 51,000 gallons. That
19 was the operating quantity. Over here it says it was
20 designed to handle 800 gallons an hour. If you
21 multiply 800 by 60 you get 48,000 gallons an hour.
22 Wait a minute. Let's see. Yeah. 48,000 gallons. So
23 a 51,000 gallon basin would give you an hour settling
24 time.

25 Q. Do you mean gallons per hour or gallons per

5
1 minute when you use those figures?

2 A. 800 gallons a minute, multiply that by 60 and
3 you get 48,000, correct. That would be gallons per
4 hour. The basin was built to hold, according to this,
5 51,000 gallons. I don't remember these figures. But
6 it's obvious that they -- in other words, what I'm
7 saying is that if the maximum amount it is going to
8 handle is 800 gallons a minute, the settling basin will
9 have a settling time of a little over an hour.

10 Q. If I could turn your attention to your
11 response in subpart D. You state that at normal flows
12 the actual settling time was four plus hours. What did
13 you mean by that statement?

14 A. Well, now, this 800 gallons a minute would be
15 the maximum. You design it to handle the maximum, but
16 at normal flows it's four plus hours. In other words,
17 the normal flow would be somewhere in the neighborhood
18 of 400 gallons a minute. I didn't say what the normal
19 flow was. But evidently I knew because I said it was
20 four plus hours.

21 Q. A normal flow in the settling operation would
22 take over four hours?

23 A. It would take over two hours. In other
24 words, if you have 800 gallons a minute and this gives
25 you a settling time of a little over an hour which it

1 does -- wait a minute. No. I see. I'm sorry. It's
2 200 gallons a minute. Okay. I divided by two instead
3 of four. The basin was designed to settle 800 gallons
4 a minute in one hour. Okay. Now, I said the settling
5 time was four plus hours. Well, say four hours would
6 give you 200 gallons a minute. So the basin must have
7 been designed for -- not designed, but the normal flow
8 through the basin at that time must have been 200
9 gallons a minute.

10 MR. SHAKMAN: When you say at that time
11 I wasn't clear.

12 A. That's a good question. I don't know. This
13 is in answer -- was this written after the plant closed?
14 I guess it was, wasn't it?

15 MR. SHAKMAN: 1980 I believe.

16 A. I don't know what time I was talking about.
17 I think we established earlier in your questioning that
18 the basin was designed for 200 gallons a minute, did we
19 not?

20 Q. I think you testified to that.

21 A. I think so, yes. So this sort of confirms it.
22 I said the normal -- yeah, it was designed -- well, for
23 a maximum flow at 200 gallons a minute that would give
24 you four hour settling time.

25 MR. SCHWARTZBAUER: That would give you

56
1 a quarter of an hour, wouldn't it?

2 THE WITNESS: No. 200 gallons a minute
3 going through the basin will go through a lot slower
4 than 800 gallons will. It will give you four hours.
5 In order to get 15 minutes settling time you'd have to
6 multiply 800 gallons a minute by four. You'd have
7 3,200 gallons a minute to give you a settling time of
8 15 minutes. Okay.

9 MR. HINDERAKER: Assuming the
10 correctness of those figures.

11 THE WITNESS: Can I answer the question?

12 MR. HIRD: Was that a question?

13 THE WITNESS: Did you ask a question?

14 MR. HINDERAKER: No, I did not ask a
15 question.

16 BY MR. HIRD:

17 Q. However, your statement that the separator
18 was designed to handle 800 gallons per minute would
19 infer that if you had a flow in excess of 800 gallons
20 per minute the separator would not effectively handle
21 that flow?

22 A. That is correct because once you get over
23 that one hour settling time -- to repeat, we found from
24 our tests -- I don't know who ran the test in the 40's,
25 but tests were run in the '50's and Mr. Justin ran a

1 bunch of tests in about the '60's. The settling time
2 we said we had to have was a half hour. So we designed
3 the basin for one hour.

4 Q. But the flow was in excess of 800 gallons per
5 minute, the settling tank wouldn't -- the settling
6 basin would not operate effectively the one that you
7 designed?

8 A. Less effectively. Like 900 gallons a minute
9 it would operate less effectively than 800. 2,000
10 gallons a minute would just pour everything out into
11 the sewer probably. You know.

12 Q. Thank you, Mr. Hennessy.

13 MR. HIRD: Off the record.

14 (At this time a discussion was held
15 off the record.)

16
17 (At this time a lunch recess was held.)

18
19 CROSS-EXAMINATION

20 BY MR. COYNE:

21 Q. Mr. Hennessy, I've handed you a copy of the
22 answers provided by Reilly Tar and Chemical to the
23 State of Minnesota Interrogatories. I have shown you
24 Interrogatory number 14 and your answer together with
25 Interrogatory 15 and appendix F which was incorporated

1 in the answer. I also direct your attention to
2 Minnosota Exhibit Number 9 and the milar map.
3 Throughout your examination we've been referring to the
4 Republic deep well and to the sugar beet well. To the
5 extent that we can this afternoon, I would appreciate
6 if we could continue to refer to those wells by those
7 names. It will make the record a little clearer.

8 A. All right.

9 Q. I would like to start out the examination
10 with a few bench marks and see if we can agree on terms
11 and on time frames for events. The sugar beet well, as
12 I understand it, was never used by Reilly Tar, is that
13 right?

14 A. I believe that's right. To my knowledge it
15 was never used.

16 Q. The other well, the Republic deep well, was
17 drilled in approximately 1918 and was used by Reilly
18 Tar for its process, is that right?

19 A. I believe that is correct.

20 Q. Now, I note in your answer to Interrogatory
21 number 14 you mention 1958. You mention it in
22 conjunction with the use of the Republic deep well. My
23 understanding is that the Republic deep well was in use
24 throughout the operation of the plant extending to
25 sometime in 1971 or 1972 rather than cessation of

1 pumping in 1958. Can you clarify that point?

2 A. I think '58 may have been the year we put
3 city water into the boilers. And you are correct that
4 this well was used for condensers, for the still
5 condensers make-up water until the plant closed.

6 Q. I'd like to refer you to some questions on
7 water supply. And of course, for this site in Saint
8 Louis Park ground water was withdrawn through the use
9 of the Republic deep well, isn't that right?

10 A. Yes.

11 Q. Were there other facilities or have there
12 been other Reilly Tar facilities that also relied on
13 ground water as its water supply for its industrial
14 process?

15 A. I don't know of any, but I can't say there
16 weren't any. I can't think of any.

17 Q. The other Reilly Tar facilities then used
18 other water supplies. Would they be surface water
19 supplies then?

20 A. You're talking about facilities away from
21 Saint Louis Park?

22 Q. Right. Other than Saint Louis Park.

23 A. Oh, some plants used all city water, some
24 plants use water from surface water, right. That's a
25 good term. Yes.

1 Q. Because I remember yesterday you mentioned
2 withdrawing from a creek for one of your facilities.

3 A. Correct. At Arlington, Utah.

4 Q. Is there any reason or what is the reason why
5 the Saint Louis Park facilities was the only facility
6 that relied on ground water for supply?

7 A. I don't know. I wasn't there when the plant
8 was built in 1918. I hate to guess. I doubt the city
9 water was available then but it may have been. I don't
10 know. I don't know why it was done.

11 Q. Now directing your attention to appendix F,
12 this is Mr. Roder's memo which is incorporated in
13 Reilly Tar's answer to State of Minnesota's
14 Interrogatory Number 15. As you can see, there are
15 about 14 pages. I'm going to direct my questions to
16 the first three pages up to the point where the memo
17 begins to discuss municipal wells in the city of Saint
18 Louis Park.

19 A. All right.

20 Q. Now, in 1979 or thereabouts when the memo was
21 being prepared did you confer with Mr. Roder concerning
22 its preparation?

23 MS. COMSTOCK: Have you had a chance to
24 read this memo, Dick?

25 A. No, I haven't.

1 MS. CONSTOCK: Why don't you give him a
2 chance to read those pages that you want him to refer
3 to?

4 MR. SCHWARTZBAUER: Which pages were
5 those?

6 A. First three. All right. I read it.

7 Q. Now, the last few minutes -- you read the
8 first three pages of the memo, isn't that right?

9 A. That is right.

10 Q. As you read it today are there corrections
11 that you would like to note, inaccuracies that you have
12 noticed in your reading today?

13 A. I'm not that familiar with it. This goes
14 back way too far, most of this stuff, for me to comment
15 on the accuracy of it.

16 Q. So you haven't known of any particular fact
17 which you would know would need to be corrected based
18 on --

19 A. I didn't notice reading through here that
20 there was any particular fact that I needed to comment
21 on.

22 Q. You'll notice on the first page about the
23 middle of the page there is reference to one deep well
24 was on the site. Do you see that paragraph? It was
25 drilled in 1898.

1 A. Yes.

2 Q. Now, I believe that that paragraph pertains
3 to the sugar beet well. Is that your understanding?

4 A. That refers to the sugar beet well, correct.

5 Q. The next paragraph says, "An additional deep
6 well was drilled 909 feet into the Mt. Simon-Hinckley."
7 My understanding is that that paragraph and the second
8 paragraph pertain to the Reilly deep well.

9 A. That is correct.

10 Q. Now, I also note on the second page and about
11 the middle of the paragraph there is reference to a new
12 hydropneumatic pumping system installed in 1955. Do
13 you see where we are?

14 A. Yes.

15 Q. My understanding is that before 1955 an air
16 lift pump was in use for water production at the
17 Republic deep well.

18 A. Yes. So that means it was in use from 1918
19 to 1955, right.

20 Q. I notice also a few lines further into that
21 paragraph that Mr. Roder advises that at that time he
22 could not determine the status of the site well after
23 1958. Do you see where I am?

24 A. "I could not determine the status of the site
25 well after 1958 with the information I have available."

1 Q. Right. Now, my understanding is that in 1966
2 or approximately at that time another pump was
3 installed, this one being an oil lubricated pump. I
4 have some documents that we're going to be going
5 through this afternoon that I believe indicate that.
6 Do you have any recollection of a further pump being
7 installed, an oil lubricated pump in 1966?

8 A. I was only involved with putting in the pump
9 in the hydropneumatic tank. I don't remember any other
10 pump.

11 Q. Okay. So as we go through the documents a
12 little bit later this afternoon I think we can
13 establish that another pump was installed.

14 A. All right.

15 Q. I'd like to now move beyond the types of
16 pumps used at various points in time to some general
17 questions about the construction of the well. Correct
18 me if I'm wrong, but I believe that you said that the
19 top of the well or the well casing extended above the
20 surface of the ground, is that right?

21 A. I am going by memory. And as I remember the
22 base of the pump, which would be at the top of the well
23 casing, was, I would say, waist high, whatever that is,
24 three feet, two and a half feet.

25 Q. Is it fair to conclude then that flood waters

1 could not enter the well because the well casing was at
2 that height, assuming that the flood waters did not
3 exceed three feet?

4 A. I think that is correct, yes.

5 Q. Are you aware of any facts which would
6 indicate that flood waters ever exceeded that height so
7 that it would be possible to have flood waters enter
8 the well?

9 A. Not at the refinery. No. I don't know that
10 flood waters ever got two and a half or three feet high
11 at the refinery.

12 Q. That would be the location of the Republic
13 deep well, is that right?

14 A. That is the location of the Republic deep
15 well, yes.

16 Q. I'll ask you to assume a hypothetical set of
17 facts, if you will. Assume that some liquid is poured
18 into the well casing.

19 A. A liquid poured into the well casing. All
20 right.

21 Q. Correct. Is there anything in the well or
22 the well casing which would prevent the movement of
23 some liquid down the well?

24 MS. COMSTOCK: If you know.

25 A. I don't know of anything that would prevent

1 the movement of liquid down a well because if water
2 moves up the well to the pump I don't know what would
3 stop liquid from going down.

4 Q. I have some questions about the use of a
5 compressor in conjunction with providing water supply.
6 Could you tell me how many compressors were used at or
7 near the well or in conjunction with providing water
8 supply over the years at the site?

9 A. I don't know. I know that an air lift was
10 used up until -- what does this say -- 1955. And how
11 many compressors had to be worn out and replaced in
12 that time I couldn't say.

13 Q. During the operation of the air lift a
14 compressor was needed, is that right?

15 A. Oh, yes. Definitely.

16 Q. Would there have been more than one
17 compressor in use at any one time?

18 A. Well, the plant certainly had more than one
19 compressor, but I'm quite certain that because of the
20 piping and so forth, which again I'm not familiar with
21 that, but I would assume that a large air compressor
22 was used for this purpose.

23 Q. What would be the capacity of such a
24 compressor?

25 A. We saw it in one of these documents, I

1 believe. I can't remember, but I think it was around,
2 I would say, around 500 cubic feet per minute.

3 Q. Would such a unit be portable?

4 A. Oh, heavens, no. This was an enormous thing
5 on a big foundation, bigger than this table.

6 Q. Where would it be located or where was it
7 located?

8 A. They had two big compressors. They had one
9 in the refinery building and one in the treating
10 building. I'm of the impression that the one in the
11 treating building was the one that was used. But I
12 can't even -- I'm not even sure of that.

13 Q. Just so I can summarize, the compressor then
14 which would have been used in conjunction with
15 providing the water supply for the Republic deep well
16 you think it likely that that compressor was located in
17 the treating area of the plant which would be the
18 retort area?

19 A. Correct.

20 Q. Now, you mention the use of a compressor in
21 conjunction with the use of the air lift pump. Would a
22 compressor also be needed after the installation of the
23 water lubricated pump in 1955?

24 A. No.

25 Q. Was the compressor valved to prevent

1 back-flow into the well?

2 A. A valve on the compressor to prevent
3 back-flow of what now? Air? Water?

4 Q. Well, I don't know if there is a difference.
5 Maybe you can explain.

6 A. Well I don't understand what valve you're
7 asking about. You're saying the flow from the
8 compressor to the well?

9 Q. Or the compressor to distribution.

10 A. I can't think of any valve. I don't know
11 what you have reference to. But I can't think of any
12 valve, no.

13 Q. My understanding is that water was taken from
14 the Republic deep well through the distribution system
15 for use into the refinery, isn't that right?

16 A. Correct.

17 Q. And that the cooling water pond was a point
18 of withdrawal of water for use in the refinery, is that
19 right?

20 A. That's correct.

21 Q. So that essentially we have water from the
22 Republic deep well going into the cooling water pond,
23 from the pond into the refinery and cycled back into
24 the pond, is that correct?

25 A. That is correct.

1 Q. I also understand that there were times when
2 the water supply from the Republic deep well connected
3 directly to the box condensers in the refinery, is that
4 correct?

5 A. He says that this tank was used for three
6 years I believe. Somewhere. We just read it. Let's
7 see. Over here. I believe it's in Roder's letter here.

8 MR. COYNE: Let's go off the record.

9 (At this time a discussion was held
10 off the record.)

11 A. A hydropneumatic pumping system was installed
12 in a well in 1955. Tarry material caused this pump to
13 fail in 1958. Now, that means from '55 to '58 the
14 answer to your question is yes, there was direct
15 connection between the hydropneumatic tank. The pump
16 pumped it into the tank and from the tank it was drawn
17 out to the condensers.

18 Q. What was the purpose or use of this tank?

19 A. Well, there are two ways you can store water
20 for use and have some decent pressure. One is to use
21 an elevated tank and the other one is to use a
22 hydropneumatic tank. Now, the hydropneumatic tank is a
23 pressure vessel. The water is pumped from the well
24 into the tank, and the air above the water is
25 compressed until it reaches a certain pressure where

1 the pump shuts off automatically. Now, as you draw
2 water out of the tank the level in the tank falls, the
3 air expands and then when it reaches another level, why,
4 it comes on. There is an on-off level. The purpose of
5 the tank is to give you pressure so that you can open a
6 valve and get water out, get water into your condensers
7 and so forth. And it has to go all the way back to the
8 pond after it goes through the condensers through
9 piping.

10 Q. I think that you've given a good explanation
11 in terms of how the pump was used in terms of
12 delivering water to the box condensers for the time
13 period between 1955 and 1958.

14 A. That was your question, was it not?

15 Q. Right.

16 A. Okay.

17 Q. At other times, if I understand this
18 correctly, water was withdrawn from the cooling water
19 pond and that water was then provided to the box
20 condensers, is that right?

21 A. That is correct.

22 Q. What do you know of the use of this
23 hydropneumatic pump after 1958 or why its use was
24 discontinued in 1958?

25 A. It was abandoned and the reason it was

1 abandoned is because these oil-tar mixtures that got
2 into the controls of the tank gummed them up and they
3 no longer controlled.

4 Q. Is it fair to conclude that the oil-tar
5 mixture was in the water withdrawn from the well during
6 this period of time?

7 A. Yes. That's fair to conclude that.

8 Q. Now, once you discontinued the use of the
9 hydropneumatic tank it is possible, isn't it, then to
10 go to the elevated tank that you described, thereby
11 continuing to serve the condensers with water drawn
12 directly from the well?

13 A. Well, it would have been possible if we had
14 elected to do that.

15 Q. Then instead what was done?

16 A. We returned to somewhat the -- okay, this is
17 the first method we had was an air lift putting make-up
18 water into the pond and drawing water from the pond.
19 That was method one. Method two was using the
20 hydropneumatic tank, going from an electric pump to the
21 hydropneumatic tank and then from the hydropneumatic
22 tank to the condensers. Method three is using the
23 electric pump, water-lubricated electric pump, which
24 just means a deep well pump, to the pond for make-up
25 water and that's it. Well, I think that answers your

1 question, does it not?

2 Q. As you've enumerated methods one through
3 three?

4 A. Yes.

5 Q. The only difference that I note is that in
6 both methods one and three you rely on water from the
7 cooling water pond for the box condensers, isn't that
8 right?

9 A. That is correct.

10 Q. The difference then would be in method one,
11 you use the air lift and in method three you use the
12 water-lubricated pump, is that right?

13 A. That is correct um-hum.

14 Q. I'd like to refer you, Mr. Hennessey, to
15 Minnesota Exhibit 19. You'll notice on the second page
16 the third and fourth lines read, "We have been recently
17 pumping direct from our well through the condensers and
18 back to our pond." This was written by Mr. Finch in
19 1970. It appears on the face of the document then that
20 this is something other than method three because it
21 appears he's describing water pumped from the well
22 going to the box condensers at that time.

23 A. If Mr. Finch is correct and accurate, why,
24 this would be method four. But I did not know about
25 this.

1 Q. But you are confident that after the pressure
2 tank was discontinued in about 1958 there was at least
3 some period of time when the water was taken from the
4 well and put into the pond?

5 A. Very definitely.

6 Q. You don't know at what point in time, if any,
7 there was a direct connection again between the well
8 and the condenser?

9 A. No. I didn't even know that there ever was.
10 I said I didn't know. If I did I've completely
11 forgotten about it.

12 Q. My understanding is that in water from the
13 Republic deep well to the pond a surge tank was used,
14 is that correct?

15 A. Well, all right, it could be called a surge
16 tank. I know what he's talking about. He is talking
17 about a tank which doesn't do anything but distributes
18 the flow so you don't get a rapid current through the
19 pond. Now to clarify this, the pump was only used for
20 make-up water. In other words, I don't know whether
21 I'm making a speech or telling you more than you want
22 to know or not, but anyway, the water was heated up in
23 the condensers. And because the temperature of the
24 water in the pond rose above atmospheric temperature,
25 it would evaporate more rapidly than a normal mud

1 puddle would, you know. And because of this we had to
2 have make-up water. So whenever the pond got a little
3 bit low the pump was turned on and pump had filled the
4 pond up again. Then they turned it off. This did two
5 things. It gave you your make-up water for the pond
6 and also reduced the temperature of the pond.

7 Q. Was the surge tank sometimes referred to as a
8 stilling basin?

9 A. Yes. That would be a better name for it than
10 a surge tank.

11 Q. You mention the temperature of the pond. My
12 understanding is that at some period of time when the
13 water temperature of the pond was too high for
14 efficient use in the box condensers water was withdrawn
15 instead from the Republic deep well. Does that make
16 sense to you?

17 A. If the temperature of the pond got above the
18 temperature they wanted to use, to my recollection
19 water was pumped from the deep well to the pond to
20 lower the temperature of the pond. Now, Mr. Finch does
21 say in this letter that in 1970 he pointed out that
22 water went directly from the deep well to the
23 condensers in which case they wouldn't have to go to
24 the pond. But I don't remember this at all.

25 Q. I'd like to ask you some questions that would

1 pertain to the period of time when there was a direct
2 connection between the Republic deep well and the box
3 condensers. The question is as follows: Assume that
4 the stills were producing creosote in the course of
5 their production. Assume further that there was a
6 break in the coil in the box condenser. And this
7 sometimes occurred, did it not?

8 A. Not a break. I've never heard of one
9 breaking. But there were leaks.

10 Q. Do they sometimes rupture?

11 A. I have never heard of a condenser coil
12 rupturing. In the first place, the pressure on the
13 condenser coil is only the back pressure through the
14 condenser. And the pressure in the stills when they're
15 going full blast is usually 6 pounds. And of course,
16 that means that your pressure entering the condenser is
17 6 pounds and your pressure at the end of the condenser
18 is atmospheric. So that means that any pipe in there
19 that ruptured would have to be ruptured by a pressure
20 of 6 pounds or less depending on where the pipe was.

21 Q. But in any event they sometimes would leak?

22 A. Oh, yes, because of corrosion.

23 Q. In the event that the still was still under
24 pressure, still operating, and that there was such a
25 break or leak in the coil, would this creosote move

1 from the coil into the cooling water in the box
2 condenser?

3 A. It would move both ways. It would move from
4 the coil, of course -- of course, all right, let me
5 explain. The scrapers coming off the still are just
6 what I said, scrapers. The top few coils of this
7 condenser are strictly vapor. Now, if this vapor
8 should leak on the vapor part of the coil, bubbles
9 would come up through the water and no doubt some of it
10 would be condensed and get into the water. Now, if you
11 get further down on the coil, of course, it depends on
12 where you are in the distillation, a leak could be the
13 other way. You could leak water into the liquid oil
14 and then fill your pan up with water in which case the
15 operator would immediately have to shut down because
16 he's not doing anything.

17 Q. I think you described that the other day.

18 A. Yes, I did.

19 Q. If you're further down in the coil beyond the
20 point where you simply have vapor then what would
21 happen?

22 A. You would get either oil leaking into the
23 water or you would get water leaking into the oil or
24 you would get both depending on where the leak was.

25 Q. Then this water contaminated now in this

1 hypothetical with some oil would return to the cooling
2 water pond, is that right?

3 A. That's right.

4 Q. If in addition to these facts there was a
5 pump failure at the time, failure in the Republic deep
6 well pump, then in that event there would be some
7 negative pressure or suction which would pull that
8 water into the well, isn't that so?

9 A. I don't understand it. I'm trying to figure
10 this out. The water is outside the coils. It comes
11 into the pan and returns to the pond. The scrapers are
12 inside the coil and they run to the receiver under the
13 condenser. Now, how you could pull a vacuum on a pan
14 which is open to the atmosphere I don't know.

15 Q. But the vacuum I guess that I'm referring to
16 is a vacuum on the water in the box condensers,
17 assuming during this period you've got a direct
18 connection between the Republic deep well and the box
19 condensers and failure of the pump well.

20 A. All right. The box condensers if you can
21 imagine, let's say, about the size of this table,
22 somewhere close.

23 Q. Meaning about what size?

24 A. Area of this table. Maybe a little bigger
25 than this.

1 Q. Could you just describe it on the record
2 because we need to know just an approximate size?

3 A. I would say 3 feet by 10 feet by 3 feet, say.
4 Now, you have a water line that runs up and across the
5 roof of the refinery and it runs down into the
6 condenser. Okay? And the top of the -- the bottom of
7 the pipe is above the water level in the condenser.
8 Now, this is the pipe that is connected to the pump.
9 So if you pulled a vacuum in that pipe, you wouldn't
10 get anything in there but air. Now, the discharge
11 comes off the bottom of the pan and runs down through a
12 valve and out into the pond to the stilling basin.

13 Q. So therefore you conclude that a back-flow or
14 back siphon from the box condensers, assuming a pump
15 failure, would not result in any flow into the well, is
16 that right?

17 A. That is correct. It's the same thing you
18 have on your wash basin at home. The plumber always
19 installs it so the bottom of the valve, the bottom of
20 your faucet is above the top of the basin so that if
21 there ever is a vacuum in there you cannot siphon water
22 back into your drinking water. This is the same deal.
23 People for years have been doing this. This is
24 standard practice in any industry I think.

25 Q. Let me ask a somewhat different hypothetical,

1 Mr. Hennessy, and see if the answer is any different.
2 Assume that a still malfunctions and that it creates
3 excess pressure, excess temperature in the still. This
4 sometimes happened, did it not?

5 A. Excess pressure and excess temperature?
6 There again I have to -- some of these questions just
7 can't be answered yes or no. I'm sorry. Prior to 1945
8 we distilled a coke but Carbochrom (ph) and Norton,
9 people like that, had a great demand for coal tar coke
10 for making abrasives and brake linings, whatever, for
11 the war effort and so forth. All right. Now, during
12 that time just before you coke a still, just before
13 coke comes off, the material comes off called red wax.
14 This material has an extremely high boiling point. Now,
15 if you allowed your condenser to get too cold, if you
16 put too much water in it and got it too cold during
17 this red wax period, you would plug the condenser solid
18 and it would be like shutting off a valve in the vapor
19 line from the still and you'd buildup pressure in the
20 still. That's one way you get over pressure. But all
21 the time I was at Saint Louis Park we never got into
22 this problem because we were distilling only the pitch.
23 We were making electrode pitch. Electrode pitch you
24 couldn't get the water cold enough to plug it because
25 there are articles by Mr. Justin in there about he

1 wanted to get the water colder, not hotter. He wasn't
2 worried about the line plugging. He was worried about
3 fumes out into the air. He wanted to cut down air
4 pollution by reducing the temperature in the pans. So
5 this was no problem when you're going to coal tar pitch.
6 Now, what was the second part of your -- I think that
7 answers the first part of your question. You had two
8 parts. What was the second part? I forget. I talked
9 so long.

10 Q. That's helpful to me because it helps to
11 better understand the answer. So basically prior to '45
12 the process that distilled coke was a different process
13 than post '45 and the production of electrode pitch?

14 A. That is correct.

15 Q. My question is I guess whether there would be
16 times, whether there could theoretically be times when
17 liquid from the still could be forced into the coils.

18 A. Liquid from the still?

19 Q. From some sort of boil over or some sort of
20 explosion. Liquid from the still being forced into the
21 coils.

22 A. There again, I never heard of a still -- I
23 won't say it didn't happen. Oh, okay. No. Not from
24 the still. Pans boiled over. But not the still. Not
25 often. But once in a great while a pan would start

1 foaming and would foam over. But this again during the
2 electrode pitch operation I never heard of this
3 happening. I don't think it ever happened during that
4 process.

5 Q. Would there be any connection between a
6 boil-over of a pan and the water used in the box
7 condensers?

8 A. No. The box condensers are up above the pan.
9 As I say, the receiver pan is below it. The water to
10 the pan and from the pan is through pipes. It's not in
11 an open trough or anything like that.

12 Q. Correct me if I'm wrong. I'm going to try to
13 summarize this last question and answer. In the event
14 of a still malfunction, a boil-over or creating excess
15 temperature in the course of the process, it was
16 impossible to have as a result liquid forced into the
17 coils?

18 A. From the still?

19 Q. From the still.

20 A. I think that is correct.

21 Q. That would be true both during the period
22 when the stills were distilling coke as well as when
23 they were producing electrode pitch?

24 A. No. Not distilling coke. When you are
25 distilling the coke they had once in awhile, I don't

1 know what was in the tar, but once in awhile they would
2 get something that they called wild tar. They wouldn't
3 run very much of that. They'd return it. The supplier
4 would hear about it. There again this is hearsay. I
5 haven't had this experience because this is really
6 before my time of learning much about refineries. But
7 this wild tar, the actual red wax or coke, it was right
8 between, right at the beginning of the coking cycle I
9 guess when the temperature reached about 425 degrees C
10 in the still. Then the still would boil over and could
11 plug the vapor lines. I don't know if it ever plugged a
12 condenser or not, but it would actually plug the vapor
13 lines and actually when you took the vapor line down
14 and dug it out you would get coke out of it.

15 Q. In this event that you just described would
16 there be some resulting contamination of the water in
17 the box condensers?

18 A. I don't know how it could get in the water
19 because it's all contained in pipes.

20 Q. But assuming that there was some leak or
21 rupture of the coil, would there be some introduction
22 of this product into the water then?

23 A. Well, there would be introduction of the high
24 boiling red wax or coke into the water, small amount of
25 it and that would be a solid. It would not be a liquid.

51
1 At room temperature that's as hard as glass.

2 Q. So it would set up and not be carried by the
3 water, is that what you mean?

4 A. It would set up and small droplets of solid
5 could be carried with water just like it could carry
6 grains of sand or something like that, gravel.

7 Q. Now, this water and the movement of the
8 droplets, if we want to refer to them as droplets,
9 would that be a fair way to describe those?

10 A. All right.

11 Q. These droplets then would flow with the water.
12 And even assuming that the pump failed at this time and
13 there was a direct connection between the box
14 condensers and the pump, if I understand you correctly,
15 you would conclude that these droplets could not enter
16 the well?

17 A. The droplets would go through the drain pipe
18 to the pond.

19 Q. Was water used in conjunction with the
20 receiving pans?

21 A. No. No.

22 Q. We've discussed the Republic deep well and
23 production of water for use in the refinery. I'd now
24 like to direct your attention to the production of
25 water for use in the retort area. My question is

1 whether the compressor in use at or in conjunction with
2 the Republic deep well was ever used in conjunction
3 with providing water to the retort area, directly to
4 the retort area.

5 A. Yeah. Wait a minute. I'm sorry. It must
6 have been because we never hooked into city water until
7 except for some fire lines we never hooked into city
8 water until about middle '50's, you know.

9 Q. So as far as you know, then the Republic deep
10 well did provide water to the retort area?

11 A. Yes.

12 Q. What would have been the use of water in this
13 area?

14 A. Cooling the compressor cylinders. What else?
15 Wherever else water was used. Where was it used?
16 There were no condensers that I can think of. Of
17 course, it was used in the boiler house which was just
18 adjacent, really in the same building I think or
19 adjacent to it. It was used for boiler water. What
20 else was it used for? I can't think of anything else,
21 but there may have been but I sure can't think of it.

22 Q. I think you said that water was used at the
23 retort area in conjunction with cooling the cylinder,
24 is that right?

25 A. The air compressor cylinder had a water

1 jacket on it very much like the radiator of your car to
2 cool air which was compressed. Again I don't know
3 about that compressor. I don't know if that was a one
4 stage or two stage compressor. If it was a two stage
5 compressor, there would have been an air cooler on it
6 between the stages. But I don't know if this was a two
7 stage or single stage. If it was a single stage, it
8 would only be water to the jacket. If it was two stage
9 it would be water to two jackets plus water to the
10 inner cooler.

11 Q. The condenser that you just described is a
12 condenser which was separate from or the same as the
13 condenser that was used to provide water from the
14 Republic deep well?

15 A. You're talking about the inner cooler in case
16 it was a two stage compressor?

17 Q. Well, whether it was one stage or two stage,
18 the compressor you're talking about was a compressor
19 that was located where?

20 A. I believe it was located somewhere in the
21 treating building.

22 Q. Just so that I have my basic understanding of
23 plumbing at the Reilly site, the water used in the
24 retort area then was provided directly from the pump
25 rather than from the well to the cooling pond to the

1 retort area?

2 A. All right. We talked about stages one, two
3 and three. In all cases even in stages one, two and
4 three the water was to the treating room, came from the
5 pump which was marked firehouse, the pump located in
6 the -- well, the lines are shown on there. The
7 so-called fire pump, which I object to the terminology,
8 but it was pumped from the fire pump which took its
9 suction from the pond.

10 Q. So if we want to follow the course of water
11 production in relation to use in the retorts, the water
12 goes from the well head or from out of the casing to
13 the pond?

14 A. Correct.

15 Q. And then from the pond through the
16 distribution system to the retort area?

17 A. Correct.

18 Q. Rather than going directly from the Republic
19 deep well to the retort area?

20 A. That is correct. I think even when we had
21 what we called stage two there where you had the
22 hydropneumatic tank, I believe none of the water from
23 the hydropneumatic tank went to the treating area.
24 Only to the stills. The water coming from the stills
25 condensers to the pond was used to go to the treating

1 area.

2 Q. If I understand you correctly, even though
3 there was at one point a direct connection from the
4 Republic deep well and the box condensers avoiding the
5 use of the pond, there was never a time when there was
6 a direct connection of the retort area avoiding the use
7 of the pond?

8 A. Not until city water was put in.

9 Q. Was there ever a direct connection to the
10 boiler bypassing the pond?

11 A. After city water was put in there was.

12 Q. But not before?

13 A. No.

14 Q. How did compressed air move from the
15 compressor that you've described being located next to
16 the retorts back to the well?

17 A. Through a pipe. I mean, there was a pipe
18 that ran along the -- it ran by what's called Wheeler
19 garage, yes, iron shed change room to the refinery.

20 Q. Is that line shown on the map?

21 A. Well, I can't tell. I can't tell. I don't
22 see it.

23 MR. SHAKMAN: Is the air line the phrase
24 you used for that?

25 A. Yes. A line for handling compressed air.

1 Q. I have another hypothetical question. That
2 is that assuming that pressure was building in the
3 retort either in the course of filling the retort or
4 during the course of treatment, and assuming some break
5 or rupture, some substantial leak in the condenser line,
6 in that event would there be a back-flow of
7 preservative into the condenser line?

8 A. Now which condenser is this? There were no
9 condensers at the creosoting plant that I can think of.

10 Q. Let me ask you when a vacuum was drawn off
11 the retort where did it go?

12 A. There was a condenser, a steam condenser,
13 that pulled a vacuum on the retort and it discharged
14 into the air.

15 Q. Was there a condensate from the condenser?

16 A. There was no condenser.

17 Q. I thought you just described a condenser
18 which would draw the vacuum off the retort.

19 A. No. An ejector. Did I say condenser? It was
20 an ejector.

21 Q. My understanding is that there was an
22 intermediate step where a condenser was used.

23 A. To my knowledge there was no condenser in the
24 vacuum line at Saint Louis Park. Now, Doctor Wheeler
25 was talking about maybe installing one in about 1970.

1 But to my knowledge none was ever installed.

2 Q. So there would not have been any condensates
3 or waste water then from this process including the
4 vacuum from the retort as far as you know?

5 A. Not from drawing the vacuum, no.

6 Q. Any other waste water stream?

7 A. Well, ties were put into the cylinder and a
8 vacuum was pulled, filled with oil and then a vacuum
9 was pulled in order to get the sap out of the wood;
10 that is, the remaining sap after the ties had been
11 seasoned in the yard. Now, when they pump the oil out
12 of the cylinder they pumped it to a settling tank where
13 this was settled for days and the water layer would
14 come to the top and the oil would go to the bottom and
15 they would then draw the water off, find where the line
16 was, they'd draw the water off and run it through the
17 settling basin. As far as process water goes, I can't
18 think of any other contaminated process water from
19 there. Yes, I can too. There was when they opened the
20 door of the cylinder to pull the charge there always
21 was a little bit of oil-water mixture would flow out
22 into a sump right at the end of the cylinder. And this
23 sump was pumped into the same settling tank I was
24 talking about before when it would be settled and the
25 water would be put through the settling basin. Those

1 are the only two streams of contaminated water other
2 than water washing through the place that I can think
3 of.

4 Q. Were there other connections to the air line?

5 A. Oh, yes. Many connections to the air line.

6 Q. Where would they be found?

7 A. Well, our tar tanks all were connected to it.
8 Our creosote oil tanks I believe were connected to it.
9 I'm sure they were.

10 Q. For heating?

11 A. Oh, no. For agitation. Air agitation.

12 Q. Any other connections?

13 A. I believe at the tie machining plant there
14 were air cylinders that used that compressed air. I
15 don't know whether the incising -- I can't think. I
16 think probably there was an air cylinder for kick-off
17 at the conveyors at the incising machine. But I can't
18 remember. This was machinery. You have hydraulic
19 cylinders and air cylinders. These would be air
20 cylinders.

21 Q. My question is -- and it's a pretty simple
22 question and if you can give me an answer and explain
23 your answer that would be helpful. That is, whether it
24 was possible given the piping at Saint Louis Park to
25 have some preservative from the retort area used in the

1 course of the operation of the retort enter the water
2 line and return to the cooling water pond.

3 A. I don't see how it would be possible because
4 there was no connection to the cooling water pond other
5 than a one way pipe going from the pond to the plant.

6 Q. Now, if you had a failure in the pumping of
7 that water which was intended to flow in one direction
8 from the pond to the retort, wouldn't it be possible
9 for a back-flow or back siphoning to the pond?

10 A. I don't know how. Water would have to flow
11 uphill to do it. I honestly don't think it could
12 happen.

13 Q. When you say flow uphill, you mean the
14 cooling water pond was a higher elevation than the
15 retort?

16 A. I'm sure the fire pump was a higher elevation
17 than the retort because the retort, I believe, was the
18 lowest point in the plant. That's why the settling
19 basin was where it was. It was a low point. That's
20 one reason. Another reason, it was close to the
21 treating building.

22 Q. Approximately what was the elevation of the -
23 did you call it the fire pump?

24 A. I don't even remember whether elevations at
25 Saint Louis Park are 400 or 500.

1 Q. I guess above land surface or above the
2 cooling water pond. I'm trying to establish some
3 relationship between the cooling water ponds.

4 A. I guess I would say -- I don't know. I don't
5 know. It wouldn't be 10 feet. It would be like one or
6 two or three feet.

7 Q. Above the --

8 A. Yes, I think so.

9 Q. Above the level of the cooling water pond
10 surface?

11 A. Yes.

12 Q. The compressor that was used in conjunction
13 with providing water from the Republic deep well was
14 not used exclusively for production of water, was it?

15 A. No.

16 Q. What were its other uses?

17 A. Agitating tanks. Let's just say in conveyors
18 in the wood machining area. I'm not sure whether that
19 creosoting cylinder had a hydraulic gasket or not, but
20 it would have been there if -- I don't know what kind
21 of doors they had, whether they were quick opening
22 doors or whether the guy had to take a whole bunch of
23 bolts loose to open it. I can't remember. I don't
24 think there was any connection because I think that
25 particular plant had a lot of bolts around the cylinder.

1 Where else would it be used? I don't know where else
2 it would be used.

3 Q. The conveyors were used in the adzing and
4 boring mill, is that right?

5 A. Adzing and boring mill, incising mill. What
6 else is there down there? Blacksmith shop would take
7 air I think. I guess that's it.

8 Q. How were the retorts' pressure used?

9 A. They had a fill pump and a pressure pump.
10 What they would do is they would fill the cylinder very
11 rapidly with oil and this pump would be a centrifugal
12 pump, a very high capacity low head centrifugal pump
13 which would just pump water very rapidly to fill the
14 cylinder. Then after the cylinder was filled they
15 would shut that pump off. And they had steam pumps.
16 These steam pumps were very low capacity, high pressure
17 pumps. After the cylinder was completely filled they
18 would start these steam pumps and these steam pumps
19 would force the oil into the wood. They would raise
20 the pressure to something like 200 pounds per square
21 inch in the cylinder. These big cylinders were
22 pressure vessels. This would force the oil into the
23 wood.

24 Q. If I understand you correctly then, the
25 compressor used in conjunction with providing water

1 from the Republic deep well was not used to pressurize
2 the retorts, is that correct?

3 A. Oh, no. No. If you did that you'd have the
4 cylinder full of water and get water in your wood and
5 you'd have to start all over again.

6 Q. The compressors were sometimes used also for
7 unloading or loading tar trucks, isn't that right? And
8 I refer you to Minnesota 18 where I believe there is
9 some mention made of that. Let's go off the record a
10 minute.

11 (At this time a discussion was held
12 off the record.)

13 BY MR. COYNE:

14 Q. You'll note, Mr. Hennessy, on the first page
15 of Exhibit 18 the final few lines read, "The air lift
16 is supplied by 35 horsepower air compressor which in
17 addition furnishes air intermittently for loading tar
18 trucks." This is back in 1954. Is that something you
19 were aware of before?

20 A. You mean that air was used for lifting pitch
21 into tar trucks?

22 Q. Right.

23 A. Or tar was lifted into tar trucks? I know
24 that they used -- they had a lot of road tar that they
25 sold, tens of thousands of gallons of it. These tar

1 trucks were loaded. Some used a pump. Some used a
2 tank. They put the road tar in a pressure tank and
3 then they put a row to the tank to lead the truck. Now
4 whether this is what -- I think this must be what he's
5 talking about. Because where else would we load a tar
6 truck? We were buying tar. We weren't selling it. So
7 this tar had to be road tar.

8 Q. I guess my point is that the same air
9 compressor used in the production of water from the --

10 A. Oh, okay.

11 Q. -- Republic deep well was also used for the
12 purpose of loading tar trucks.

13 A. Yes, if that's the way he did it. That's
14 what he says so I assume it's correct. I don't
15 remember it. But it must be.

16 Q. Do you know whether the compressor was
17 located down gradient from this tar loading area?

18 A. The tar loading area was at the refinery and
19 the trucks were loaded -- well, there again from memory.
20 I believe the trucks were loaded on the east side of
21 the refinery. However, it's possible they were loaded
22 on the west side.

23 Q. Just for your reference, Mr. Hennessy, you'll
24 note that loading dock is indicated on the milar map,
25 Minnesota 9. That indicates an area to the east of the

1 refinery. Is that consistent with your recollection?

2 A. This loading dock sent -- the one I'm talking
3 about. This loading dock is for loading electrode
4 pitch into railroad cars. This dock and this dock both
5 are for loading electrode pitch.

6 Q. So the area that you're referring to then is
7 some other. Can you describe it in relation to the --

8 A. As I remember, there was a tar loading line
9 at the northeast side of the refinery, north side of
10 the refinery.

11 Q. Nearby to what is shown as the pump room? Is
12 that the general area?

13 A. Yes, um-hum, correct.

14 MR. SHAKMAN: That existed before the
15 electrode pitch operation, that loading area?

16 A. It existed before and I believe after, um-hum.

17 Q. This point that you just referred us to on
18 the map, this loading area, was that at a higher
19 elevation or a higher point on the plant site than
20 where the compressor was located?

21 A. Well, it probably was, but these trucks were
22 on a road out there and the tank of the truck, of
23 course, would be higher because it would be, what's the
24 distance from the bottom, about 52 inches I imagine
25 between the bottom of a truck and the road.

1 Q. So that in general would it be true to
2 conclude that the pump was at a point generally down
3 gradient from this loading area?

4 A. By pump you mean air compressor?

5 Q. Right.

6 A. Yes.

7 Q. If the compressor should fail in the course
8 of the loading of tar, would there be some back-flow or
9 siphoning then down through that line back to the
10 compressor?

11 A. No. These tanks were loaded from the top.
12 The man, the truck driver, would have to get out and
13 get on top -- or I guess he stayed in the truck and our
14 employee got on. I don't know. I wasn't in on the
15 operation. But anyway, the pipe would come down as
16 much as you would see bulk stations in oil -- if you've
17 ever gone by a bulk station in a city where the
18 petroleum industry fills gasoline trucks and oil trucks
19 to go out to filling stations, you'll notice they have
20 a pipe which they pull down and the bottom of this pipe
21 never gets inside the truck. The truck has a little
22 dome on it and it goes inside the dome but not inside
23 the truck. In the first place, the nipple's too short
24 for it to go down in. You couldn't put it in if you
25 wanted to. It's very much the same idea as your wash

1 basin at home where the faucet ends above the top of
2 the basin so you can't siphon water back into your
3 drinking water. This thing here the bottom of the pipe
4 has nothing around it but air.

5 Q. So then if I understand you correctly, it
6 would be impossible because of this process to have a
7 back siphoning in the line even if you lost pressure in
8 the compressor?

9 A. Yes. In my opinion it would be impossible.

10 Q. For the reasons that you've --

11 A. Now wait a minute. Oh. The compressor in
12 the first place would be putting air -- if they used a
13 pressure tank to do this, the compressor would put air
14 on the tank above the pitch from the top of the tank
15 and then the guy would shut off the valve and you'd
16 open a valve on the bottom of the tank and the road tar
17 would then go into the truck. In other words, what I
18 described to you had nothing to do -- I was making a
19 mistake. I was thinking of loading the truck instead
20 of the air. You were asking about the air line. The
21 air line was connected -- if we used that system, and I
22 don't remember because I was never involved in loading
23 tank trucks at Saint Louis Park. I had nothing to do
24 with designing the system or anything else. But based
25 on my knowledge of how we load trucks, if a pneumatic

1 tank was used, the air went into the top of the tank
2 and the amount of tar you were going to load in the
3 truck would be put in the tank and then you would open
4 the valve and put the tar into the truck.

5 Q. So the conclusion of that would be what with
6 regard to --

7 A. That would been no.

8 Q. It would be impossible?

9 A. I think it would.

10 MS. CONSTOCK: Could we maybe have a
11 short break?

12 MR. COYNE: Sure.

13 (At this time a recess was held.)

14 MR. COYNE: Back on the record.

15 BY MR. COYNE:

16 Q. I'd like to go back, Mr. Hennessy, to the
17 appendix F which is incorporated by reference in Reilly
18 Tar's answer to State of Minnesota Interrogatory number
19 15. Particularly to the first page of the memo.

20 A. All right.

21 Q. My questions pertain to the Republic deep
22 well which is discussed in the paragraph beginning,
23 "Additional deep well was drilled 909 feet into the Mt.
24 Simon-Hinckley." There is a notation here in the memo
25 in the third line of that paragraph to the addition of

1 a 10 inch casing in 1933 as well as an 8 inch casing
2 and a 4 and a half inch casing. You'll note also that
3 at the same time Reilly Tar laboratories reported the
4 presence of phenol in water withdrawn from the well and
5 you'll note that at the bottom of the page, do you?

6 A. Yes.

7 Q. Now, in your experience would you expect
8 phenols to be present in ground water at these
9 concentrations?

10 A. Well, it obviously was at the peat bog. One
11 hundredth of a part per million. But I know there is
12 phenol in swamps and there is also - yes, there is
13 phenol, natural phenol.

14 Q. But if I understand you correctly, you
15 conclude that because there is phenol in the peat bog
16 there would also be phenol in water drawn at a depth,
17 for example, of 370 feet as reported here?

18 A. Well, of course, I have no knowledge of the
19 connection between the bog to the northwest of our
20 plant site and our wells so I can't say. I don't know.

21 Q. So if I understand you correctly, you don't
22 have any explanation for the presence of phenols in the
23 well as reported here?

24 A. No.

25 Q. In 1933 at the time these phenol results were

1 reported there was also this additional casing added to
2 the well. Was this done to somehow contain or
3 eliminate the phenols?

4 A. In 1933 I was in high school. I'm sure I
5 don't know. Mr. Roder I guess somehow or other went
6 into the history and got this out of the literature. I
7 don't know where he got it. Well, I guess maybe these
8 numbers will tell you. I don't know.

9 Q. The numbers that you refer to here refer back
10 to pages 13 and 14 entitled References and
11 Documentation used in Report and apparently these are
12 letters or memorandum of certain dates attributed to
13 certain authors --

14 A. Um-hum.

15 Q. -- who would know what the reasons were for
16 adding this casing in 1933, if you don't know.

17 A. Well, Herb Finch would not know because he's
18 younger than I am. Mr. Horner might know because he
19 was with the company since I think in the mid '20's. I
20 don't know who else would know. Doctor Mootz wouldn't
21 know because he was in Newark until about 1952. I
22 can't remember what it was.

23 Q. You mentioned pilot plant. What plant was
24 that?

25 A. There was a plant -- pilot plant means a

1 plant where you test processes see how they work. The
2 chemist comes up with a new process for taking
3 chemicals out of coal tar and selling them. They would
4 make it into a pilot plant. And then if they decided
5 it was a money-maker, it had a chance of being a
6 money-maker, they would build a production plant for it.
7 But a lot of the pilot plant material was sold trying
8 to get ideas of whether they could make a profit or not.

9 Q. That pilot plant then is not a separate
10 Reilly Tar plant, it's a part of a laboratory, is that
11 right?

12 A. It's an adjunct to the laboratory and really
13 research and development was running it.

14 Q. Did the activities of this pilot plant group,
15 if I may call it that, extend into waste water
16 treatment?

17 A. No, not to my knowledge.

18 Q. Was there any research done on waste water
19 treatment by the company?

20 A. Not to my knowledge. That's a hard question
21 to answer. I can't say no and I can't say yes. I
22 don't know.

23 Q. Who would have knowledge of any research done
24 in this area?

25 A. I would suspect that Doctor Courtney might.

1 I know of research done in the area but it was far
2 after the fact. It was in the late '70's that research
3 was done and it was for the chemical plant in
4 Indianapolis. But I don't know of any other research
5 prior to that time that is what you would really call
6 research. There is search of literature for facts like
7 Mr. Roder did here. This certainly isn't research.
8 This is just history. He just pulled out all the
9 documents he could find and read them and wrote a
10 report on it. There was a lot of that kind of work
11 done. But there was no what I would call research
12 where we would have our own in-house method of treating
13 waste water.

14 Q. You mentioned that Mr. Courtney had a
15 doctorate. Do you know --

16 A. No. No.

17 Q. I thought you referred to him as Doctor
18 Courtney.

19 A. If I did it was a mistake. He has an
20 advanced degree. I don't know what it is, but I do not
21 think it's a Ph.D.

22 Q. And the advanced degree would be in what,
23 science?

24 A. I imagine chemistry. I don't know. He
25 worked as a chemist so I assume it was chemistry.

1 Q. What's Mr. Roder's background?

2 A. Mr. Roder is a graduate chemist and he's
3 worked at the laboratory as a chemist ever since he
4 came to work for the company I believe.

5 Q. Which was?

6 A. Oh, Mr. Roder is young. I don't know. I
7 would say he came with the company in maybe -- judge
8 somewhere around 1970, between '65 and '70. That's my
9 guess. I don't know. He's a young man I'll tell you
10 that. Much younger than I am.

11 Q. Perhaps going back to Mr. Roder for a minute,
12 you mention he's a graduate chemist. And by that you
13 mean that he has a Bachelor's Degree?

14 A. Yes. He has a Bachelor's Degree from the
15 University of Wisconsin somewhere. I don't know
16 whether it's at Madison or where. I don't know much
17 about Wisconsin. He has a Bachelor's Degree in
18 chemistry from one of the Wisconsin state universities.

19 Q. Which division does he work in?

20 A. Here we come to titles again. He works as a
21 chemist in the laboratory. Now, what division that is
22 I don't know. I can tell you what kind of work he does.
23 He does both chemical research, I believe, you could
24 call it research, and he also does development work.
25 Okay.

1 MR. SCHWARTZBAUER: It's the refinery
2 division, isn't it, Mr. Hennessy?

3 A. I don't know that Mr. Roder has ever worked
4 on road tar, but -- I'm sorry. I must have road tar on
5 the brain.

6 Q. Is it Mr. Roder?

7 A. Mr. Roder has worked on coal tar refineries.
8 Well, for instance, when we built the pitch plant at
9 Cleveland he was very much involved in that. He is in
10 development. He works in better ways of making things
11 out of coal tar.

12 C. I have some questions that pertain to the
13 quality of water used in the course of the activities
14 at the Reilly Tar in Saint Louis Park. You'll note in
15 the Roder attachment appendix F he references in 1933
16 analysis which establish the phenol concentrations as
17 they're reported here. He indicates that later that
18 same year in June 1933 there were also phenols present
19 in the water. And in the course of this past week
20 we've referred to many documents mentioning the
21 presence of phenol in the water that went through the
22 plant process. Some people have referred to the
23 presence of oil, others to the presence of tar, some to
24 the presence of other contaminants. So my questions
25 pertain to the quality of water, the next few questions.

1 A. All right.

2 Q. I believe that you said that the boilers were
3 connected to the cooling pond as their source of water
4 supply, is that right?

5 A. Correct.

6 Q. Now, from this document and others we know
7 that there was some phenol contamination of that water,
8 isn't that right?

9 A. Okay. Yes. It was pulled up the well. All
10 right. Yes. Um-hum.

11 Q. Now, I think you said, and correct me if I'm
12 wrong, in previous testimony that oil in the boiler
13 feed water would cause foaming in the boilers, is that
14 correct?

15 A. That's right.

16 Q. Would phenols also cause foaming?

17 A. It would depend on the concentration. See,
18 phenols are very, very soluble in water. You wouldn't
19 get balls or slicks of phenol. They would be dissolved.
20 They would be like dissolved solids in the boiler which
21 don't really cause too much trouble especially in very
22 small quantities. We're talking about here about 10
23 parts per million which would be -- well, I don't know.
24 It would be a very small amount.

25 Q. However, this same data referenced in the May

1 2, 1979 appendix F refers to 50 parts per million, does
2 it not, from water withdrawn from the well with 65 feet
3 of casing?

4 A. 20 to 50, right. Wait a minute. This is
5 Riley. Yes. In 1933 it was 20 to 50.

6 Q. Would concentration of phenol at that level
7 cause problems in the boilers or not?

8 A. I doubt it.

9 Q. So the real concern would be oil as
10 distinguished from phenols, is that right, with regard
11 to foaming in the boilers?

12 A. Real problem with what now?

13 Q. With regard to foaming in the boilers would
14 be caused by the presence of oil rather than phenols.

15 A. Oh, yes, I'm sure that's right.

16 Q. Now, if there was tar as some have said in
17 the water that was used to service the boilers, what
18 problems would be associated with the presence of tar?

19 A. Goodby boiler.

20 Q. Would you explain that?

21 A. The tar would, of course, come in contact
22 with the boiler tubes. And when it came in contact
23 with the boiler tubes, it would distill in there and
24 eventually it would go to coke. Then you'd have a
25 scale on the tube. The tube would get red hot. When

1 the tube gets red hot, it would have very low strength
2 and it might rupture. Any good boiler operator when he
3 sees a red tube he shuts the boiler down immediately
4 and calls the plant manager and says, "Look, I'm
5 shutting down. We got red tubes."

6 Q. Did the Reilly Tar facility at Saint Louis
7 Park experience red tubes?

8 A. Everybody that's ever run a boiler
9 experiences red tubes at one time or another and they
10 immediately shut down before any damage is done. If
11 they don't shut down fast enough they'll get a big
12 bulge in the tube. And they have to (inaudible) or if
13 they shut down slower than that, you got steam all over
14 the boiler room. If you got a water tube boiler, you
15 just got a room full of steam and hot water running all
16 over the floor. If you got a fire tube boiler, you got
17 a big bang and the roof may come off the boiler house.

18 Q. Did the presence of tar in the water supply
19 used for the boilers cause any such ruptures or upset
20 in the boilers?

21 A. It certainly never caused any explosion
22 because I don't know of any boiler explosions at Saint
23 Louis Park. I won't say there weren't any. I
24 certainly don't remember any. Of course, there were
25 maintenance problems with those boilers. They were

1 caused by scale. And what caused the scale I don't
2 know. I don't think the document says anything about
3 whether it was coke or whether it was magnesium salts
4 and calcium salts. I really believe it was salts
5 because they keep talking about putting in a zeolite
6 treatment system to take the -- change the magnesium
7 and calcium salts to sodium salts.

8 Q. Based on what you know and what you read and
9 have reason to believe, do you conclude that there was
10 tar in the water supply to the boilers?

11 A. Well, I don't know how to say it. I don't
12 know why I would suspect there was tar in the water
13 because if there were tar in the water it would cause a
14 lot of problems. I don't know that we had these
15 problems.

16 Q. So you conclude based on the fact that you
17 neither know nor have read about any problems
18 associated with tar in the water supply used by the
19 boilers that there was no tar, is that a fair statement?

20 A. It's a fair statement, yes.

21 Q. On the other hand, do you doubt those who
22 have reported the presence of tar in the boiler feed
23 water?

24 A. Did someone report the presence of tar? I
25 guess they did, didn't they?

1 MR. SCHWARTZBAUER: In the boiler feed
2 water or in the well?

3 Q. Well, --

4 MR. SCHWARTZBAUER: The pump I mean.

5 Q. I think that the documents establish that
6 water withdrawn from the water in the cooling water
7 pond certainly had tar, the presence of tar.

8 A. How would tar get in the cooling water pond?
9 We've never established that. I don't know how it
10 would get in. I know how creosote oil could have
11 gotten in there. But how could tar have gotten --

12 Q. How could creosote oil have gotten in?

13 A. You just pointed out leaks in the condenser
14 tubes.

15 Q. That's what we discussed earlier this
16 afternoon?

17 A. Yes, as you and I discussed earlier this
18 afternoon. But I don't believe we ever discussed tar
19 getting in the water. I don't frankly know how it
20 would get in.

21 Q. I think you're right. I think we haven't
22 discussed how tar would be introduced into the cooling
23 water pond.

24 A. Yes. That's right.

25 Q. However, in the course of the past week and

1 your examination by others there are documents and
2 references to the presence of tar in the cooling water
3 pond, isn't that true?

4 A. There was something in the cooling tar pond
5 that they called tar balls. I believe I gave my
6 opinion that I don't believe -- I believe they're
7 misnamed.

8 Q. Rather than being globs of tar, if you will,
9 they were really what?

10 A. Cylinder oil from the air compressor.

11 Q. Assuming, however, that there actually was
12 tar in the cooling water pond, would we then conclude
13 that the boiler feed water contained tar?

14 A. If there was tar in the pond in sufficient
15 quantities to be entrained in the suction to the fire
16 pump, the boiler feed water would contain tar prior to
17 the time city water was put in, yes.

18 Q. At about what concentration would be
19 sufficient to be entrained in the flow in the fire
20 water pump?

21 A. I don't know. But it would have to be enough
22 to coat some tubes and form a scale on the inside of
23 the tube or the outside of the tube depending on which
24 boiler it was you're talking about.

25 Q. So that tar in sufficient concentrations can

1 produce a scale in the boiler?

2 A. Tar in sufficient concentrations can produce
3 scale in a boiler and it will ruin the boiler and the
4 boiler will get red tubes very rapidly. And if it
5 isn't shut down, it will fail, it will rupture.

6 Q. Would oil also cause the buildup of scale?

7 A. Oil would be much less likely to cause a
8 buildup of scale because it would not coke and it would
9 not form as much -- what oil would do rather than cause
10 a scale would cause the boiler to foam over. You would
11 get water in your tar lines -- I'm sorry. You would
12 get water in your steam lines, steam mains.

13 Q. Would phenols contribute to the formation of
14 scale?

15 A. If they were, as I say, in sufficient -- well
16 wait a minute. I don't know. Phenols would be -- I
17 don't know. Because phenols would be a dissolved oil.
18 And when you heat water to steam I don't know whether --
19 I don't think -- I don't know. I just don't know.
20 Suspended solids can make a boiler foam too. You'd
21 have to have a lot, in my opinion, I don't know, but in
22 my opinion you'd need a much greater concentration than
23 this. These are very small concentrations.

24 Q. These concentrations being the ones referred
25 to at the bottom of the second page of Mr. Roder's memo

1 appendix F --

2 A. Yes. Um-hum. Say you had 10,000 gallons of
3 water. I don't have a pencil. I'll do a little
4 figuring here. Say you have 10,000 gallons of water.
5 All right. Say you have .02 parts per million. Okay.
6 That means you would have -- there is .01 and then
7 multiply .01 by .02 would be .02 parts per million. It
8 would be not .02 parts per million. .02 gallons. I'm
9 sorry. .02 gallons of phenol. And then you've got --
10 wait a minute. This is at a parts per million of --
11 this is .01. That would be .01 gallons of phenol if it
12 was .01 ppm. And .02 would be .02 gallons. Okay.
13 You've got four quarts in a gallon. So four times two
14 is eight. That would be .08 quarts. Anyway, it would
15 be less than a tenth of a quart in 10,000 gallons.
16 That's what we're talking about. The boiler would
17 never see it. It wouldn't do anything.

18 Q. We've talked about oil in the water, tar in
19 the water, phenols in the water. What problems would
20 be associated with pulling creosote contaminated water
21 into the boilers?

22 A. I can't point to any specific incidents, but
23 I know that if you pull creosote oil into the boilers
24 in sufficient quantities you will get foaming in the
25 boiler.

1 Q. Was that a problem at the Saint Louis Park
2 facility?

3 A. I can never remember flooding the steam lines
4 with water because the boiler -- the term that
5 management used, not the plant manager, boiler
6 operators liked to use was puke. So I cannot recall a
7 case in which the boilers at Saint Louis Park puked.
8 Now, I won't say they didn't. But I just have no
9 knowledge of it.

10 Q. If you'd refer to Minnesota Exhibit Number 17.
11 This is an inspection report completed by the Travelers
12 Insurance Company. In the first few lines the
13 inspection reports four blistered water wall tubes,
14 heavy scale deposits with evidence of old oil was
15 noticed in the steam drum, the water wall tubes and
16 headers were heavily scale coated. Does the presence
17 of oil cause water walls to blister as reported here?

18 A. I don't know. This guy observed the boiler.
19 I don't know whether the scale was due to poor
20 treatment of the water or whether old oil caused it. I
21 would imagine the oil would cause, if it is present in
22 enough quantity, would cause the thing to boil over
23 into the steam line. And I would say that the calcium
24 and magnesium salts would cause the scale.

25 Q. How does that associate with the blistering

1 he reports?

2 A. Well, when you get scale -- this is the water
3 wall, all right? Water wall boiler has water
4 circulating through the tubes and fires outside the
5 tubes. Now, in a clean boiler the temperature of the
6 tube is going to be 5 or 10 degrees hotter than the
7 water. The water is very rapidly passing through these
8 tubes and carrying the heat away. Actually, the water
9 in the tubes would be finely dispersed bubbles of steam
10 in the water. This is what causes the tube -- the top
11 of those tubes would look like a fire hose if you could
12 see them squirting water up into the drum. If you get
13 scale on the tube, the scale acts as an insulator. And
14 instead of the heat going through the tube and into the
15 water and cause it to flash into steam, it heats the
16 tube and the tube no longer is 5 or 10 degrees hotter
17 than the water. It can get somewhere halfway between
18 flame temperature and water temperature. As the
19 temperature of the tube goes up, the strength of the
20 tube goes down. Steel at room temperature has a
21 certain strength. Then as you heat it it gets stronger
22 and stronger. Then it gets weaker and weaker after you
23 pass 300 or 400 degrees and then at 600 degrees I
24 believe, 600 or 650, it has the same strength as it
25 does at room temperature. Then after 650 F the

1 strength of steel drops rapidly and at 900 or 1,000
2 it's at the point where most codes won't let you
3 attribute any strength to it which is regular carbon
4 steel which boiler tubes are made of. You get those
5 tubes red hot, they're way above 1,000 and they're
6 going to be -- steel actually is going to be soft.
7 Like you've seen blacksmiths they can bend iron, how
8 easy it is. When it's red, that's how these tubes are.
9 The boiler pressure will cause it to balloon up like
10 blowing, you know, a balloon. That is what is meant by
11 what does he call it? Blistering. They call those
12 blisters, yes. All right.

13 HE. SHARMAN: The ballooning out, that
14 description?

15 A. Um-hum. What you would have is you'd have a
16 cylindrical pipe with like a blister. The metal would
17 actually have stretched and formed a blister on the
18 tube.

19 Q. Mr. Hennessy, this inspection report, and
20 there are other inspection reports in our document
21 collection which reference contaminated water supplied
22 to the boilers with problems or maintenance problems in
23 the operation of the boilers. This memo, for example,
24 describes the cooling water pond as being subject to
25 creosote contamination after the connection to city

1 water. Wasn't that connection made in the 1950's
2 sometime, approximately 1958?

3 A. I think so.

4 Q. Wasn't that done for the purpose of improving
5 the operation of the boilers by providing a better
6 quality of water to the boilers?

7 A. That's correct.

8 Q. So therefore, isn't it fair to conclude that
9 much of the maintenance problem experienced prior to
10 connection to the city is attributable to contaminated
11 water supply to the boilers?

12 A. Well, I'm sure some of it was, yes.

13 Q. You say some of it was. Is it fair to
14 conclude that a major part of the upset in the boilers
15 is attributable to contaminated water supply?

16 A. Well, as I say, I don't know. I don't know
17 how often they got water in their steam lines and I
18 don't know how often they had to turbine the tubes. So
19 unless I knew that I couldn't say. You see, if you get
20 oil in the boiler, it could also cause tubes to get hot
21 because I think it would inhibit the formation or the
22 flow of water through the tubes. I don't know. I'd be
23 speculating. I can't telling you which was the --
24 certainly the facts that creosote oil was in the water
25 certainly contributed to the boiler problems. There is

1 no question about that now. Whether the internal
2 treatment which they used at that time or the creosote
3 in the water, which one caused the most problem I can't
4 say. I don't know.

5 Q. When you say treatment do you mean treatment
6 supplied to the commercial treatment provided to the
7 boiler? I understand there was some better way to ask
8 it. What did you mean when you said treatment provided
9 to the boilers?

10 A. Before the zeolite softner was put in
11 chemicals were dissolved in water and pumped into the
12 boiler. These chemicals treated the boiler internally.
13 The salts that would normally have been changed,
14 instead of the salts being changed to sodium salts in
15 the water softners, they were later reciprocated out by
16 these chemicals in the boiler and had to be blown down
17 from the boiler drum, from the blow down drum.

18 Q. Mr. Hennessy, I have a document I just wanted
19 to know if you could identify it for us. I'm showing
20 you a handwritten note that appears to have the word
21 "Dick" in the upper left-hand corner underscored. This
22 would be Minnesota Exhibit Number 117. Do you
23 recognize the handwriting?

24 A. No, I don't recognize the handwriting.

25 Q. Have you ever seen the document before that

1 you can recall?

2 A. I can't recall it, no. It was sent to
3 somebody named Dick which might have been me. It was
4 obviously written at Saint Louis Park.

5 (At this time Minnesota Deposition Exhibit
6 117 was marked for identification by the
7 Court Reporter.)

8 BY MR. COYNE:

9 Q. I have some questions about the air lift pump
10 This was the type of pump that was installed and used
11 from the installation of the well in approximately 1918
12 until approximately 1954, 1955, is that correct?

13 A. Yes.

14 Q. What maintenance was done on the air lift
15 over the years?

16 A. I don't know. I wasn't involved with
17 maintenance at the plant.

18 Q. So to the best of your recollection the
19 engineering department was never consulted with regard
20 to the maintenance of the air lift?

21 A. I don't remember ever being consulted with
22 regard to the air lift.

23 Q. Who would know of the maintenance of the air
24 lift other than Mr. Finch?

25 A. Mr. Finch probably wouldn't know. Was he

1 there then? I don't know. When did Mr. Finch come to
2 the plant?

3 Q. About the mid '50's.

4 A. He might know because that's about the time
5 they took it out, isn't it? So Mr. Holstrom is
6 deceased. He would know. Mr. Larkin, I don't know
7 where he is. He would know. I don't know who else
8 would know.

9 Q. Do you know of repairs made to the air lift
10 over the years?

11 A. I don't know of any maintenance done on the
12 air lift over the years, no.

13 Q. Or repairs of the air lift?

14 A. Or repairs, no.

15 Q. Do you know whether the air line on the well
16 was ever replaced over the years while the air lift was
17 in operation?

18 A. No, I don't.

19 Q. Do you know if the air line in the well ever
20 dropped or fell into the well or part of it?

21 A. Not to my knowledge. I never heard of it.
22 No. I don't know. I doubt that it did.

23 Q. How is it that you would doubt that it ever
24 did?

25 A. You usually hear about things like that. For

1 instance, in 1917 someone tried doing -- I don't know
2 what they were trying to do at the old sugar beet well
3 and they dropped their equipment down to the bottom of
4 the well and couldn't retrieve it. I just heard about
5 this through letters. But if something like that
6 happened if we -- see, this was something that happened
7 before we ever operated the plant, before we even built
8 the plant there. But if something like that happened
9 when we were operating it, I feel certain that
10 everybody would have known about it or we would have
11 known about it.

12 Q. Where did you happen upon these letters
13 referring to the old sugar beet well and the dropping
14 of the tools?

15 A. I think Mr. Roder's letters mentioned or if
16 they didn't mention I think he had them. He had a
17 whole stack of stuff on wells in Saint Louis Park
18 including that one. So I don't know where I read them.

19 Q. So that in the course of preparing this memo
20 which is appendix F he gathered together some reports
21 which are the reports that you just referred to?

22 A. Yes.

23 Q. And among those you believe were documents
24 referring to the dropping of the tools?

25 A. Yes, there were. I believe. I believe

1 that's where I read it. I read it very late in the
2 game like '78 or '79. When was this thing written? It
3 was late in the game. I believe Mr. Roder dug the
4 document out of somewhere. I don't know where he got
5 it.

6 Q. Are those documents still intact, do you know?

7 A. Well, I think Rob Polack -- I think they
8 were all sent to the office and I think the State went
9 through them all and copied what they wanted. I don't
10 know where they are now. I don't have them.

11 MR. COYNE: Is it your understanding, Ed,
12 that these documents that Mr. Hennessy just described
13 have been produced to us?

14 MR. SCHWARTZBAUER: Well, if Reilly has
15 any such documents, they would have been produced to
16 you. I don't know of the documents that Mr. Hennessy's
17 talking about.

18 MR. COYNE: I inquired yesterday of Rob
19 Polack about the materials referenced in the Roder
20 memorandum and he said he would locate those documents
21 and provide them to us. So we still have that request
22 outstanding. If you would please provide the documents
23 in reference to Miller's memorandum, reference
24 documents, before the resumption of Mr. Hennessy's
25 examination that would be important to us if you could

1 do 'that.

2 MR. SCHWARTZBAUER: Yes. We'll do that.

3 MR. COYNE: If you would check further
4 just to see that the packet of material gathered by Mr.
5 Roder in the course of preparing the answer has been
6 produced to this date and not somehow inadvertently
7 been left out of the production.

8 MR. SCHWARTZBAUER: We have records
9 which indicate what has been produced to the State. As
10 I say, I don't know what Mr. Hennessy is referring to
11 in his answers to the last couple questions.

12 THE WITNESS: All I know is I read a
13 letter because 1917 I was two years old. I have no
14 knowledge of this thing.

15 MR. SCHWARTZBAUER: That's okay, Dick.
16 All I can say is that we will do what you just asked us
17 to do and we will produce the document referenced by
18 Roder. We'll also ascertain of those documents whether
19 they were produced.

20 MR. COYNE: The documents that I'm
21 concerned with are the total document collection pulled
22 together by Roder from which he apparently selected or
23 may have selected only a few documents which are those
24 referenced in the appendix "F".

25 MR. SCHWARTZBAUER: I don't know what

1 Roder looked at precisely. But I believe the only
2 thing he could have looked at are the documents that I
3 have seen in Reilly's files which were produced. They
4 all have number stamps. Everything that had a number
5 stamp was shown to Steve and to the paralegal from the
6 Popham firm when they came down in April or May of 1979.

7 MR. COYNE: All I'm asking you to do is
8 double-check to see if they weren't somehow
9 inadvertently left out of the production.

10 MR. SCHWARTZBAUER: I can't do that
11 because I don't know what they refers to.

12 MR. COYNE: Mr. Hennessy's referred to a
13 bundle of documents which Mr. Roder had assembled which
14 Mr. Hennessy reviewed. In that collection of bundled
15 documents there were these documents referring to loss
16 of tools in the water.

17 MR. SCHWARTZBAUER: There is not in
18 existence today a bundle of documents that Roder looked
19 at. I've been told, and, of course, this is hearsay,
20 that Roder went through the company's original files
21 and examined those original documents. And those
22 original documents were not pulled aside into a bundle,
23 but they're still where they were at that time and
24 that's where they are today and they all have a
25 document number on them and they were produced.

1 MR. COYNE: I'm asking you to ascertain
2 as far as Roder knows if all of his documents were
3 returned to the files and then later stamped and
4 produced and so forth.

5 MR. SCHWARTZBAUER: Yes. All right.

6 BY MR. COYNE:

7 Q. Mr. Hennessy, what were the difficulties with
8 the operation of the air lift over the years?

9 A. There again I don't know anything about the
10 operation of the air lift. All I know is the water was
11 pumped by an air lift. That's about all I know.

12 Q. Because the air lift was in production for
13 approximately 20 years after your coming to Reilly Tar
14 and through many years when you were assistant chief
15 engineer it seemed appropriate to ask you what you
16 might know or --

17 A. It's appropriate to ask but I don't know. I
18 don't believe I ever got involved in the air lift until
19 we replaced it.

20 Q. So you were involved at the point when the
21 transition was made then from the air lift to the water
22 lubricated pump?

23 A. I was involved in purchasing the water
24 lubricated -- well, not purchasing but specifying the
25 water-lubricated pump and the hydropneumatic tank, yes.

1 Q. Other than those people whose names you've
2 mentioned in conjunction with knowledge of the
3 maintenance of the air lift or repairs to the air lift,
4 are there any other people who would have knowledge
5 with regard to the upset or difficulties in the
6 operation of the air lift over the years?

7 A. Since this was at Saint Louis Park and I knew
8 very few people at Saint Louis Park, I told you all the
9 people I know that might have knowledge of it. It's
10 possible there is some air lift manufacturer in Saint
11 Louis Park that might have knowledge of it but I don't.
12 I don't have any.

13 Q. So to the best of your recollection the air
14 lift did not really become an issue or come to the
15 attention of the engineering department until sometime
16 in the mid '50's when the transition was to be made to
17 the water-lubricated pump?

18 A. That's correct.

19 MR. COYNE: Mr. Hennessy, we're going to
20 resume our examination sometime in March I believe,
21 isn't it, Ed?

22 MR. SCHWARTZBAUER: Yes. That's what
23 we're shooting for.

24 MR. COYNE: We'd agree with Mr.
25 Schwartzbauer to set aside two weeks in March 1983 for

1 that purpose here in Indianapolis. Thank you.

2 THE WITNESS: You're welcome.

3

4 (At this time the deposition was adjourned.)

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PG LN '30'S*

PG LN '40'S*

11 14 was somewhere in the late
28 18 Might have been the late
54 2 designed -- A. Early
65 1 days, back in the early
93 9 -- whatever it was, late
115 20 , you know, back in the
115 22 pretty well in the early
141 21 . Q. Then in the late
143 23 19 -- well, in the late
147 15 A. I would say from late
157 22 was designed in the early
173 9 designed in the early
173 12 the basin of the early
174 6 was designed in the early
174 23 ? A. Oh, no, not in the
175 2 taken into account in the
175 4 . Q. Between the
187 25 was, I don't know, in the
187 6 line. Back in the late
187 6 the late '40's and early
187 10 the boilers. Q. In the
187 11 the '40's? A. In the
162 24 who ran the test in the

'40'S I was more or less
'40'S. O. I believe
'40'S I was told it was a
'40'S, we used an awful
'40'S, was hot off the
'40'S, you know.
'40'S. Now, you know,
'40'S you had a job title
'40'S or early '50's I
'40'S until they
'40'S. Q. I know
'40'S also did not remove
'40'S and the settling
'40'S, if I understood
'40'S, no. We did take
'40'S? A. No. No.
'40'S and the planning
'40'S I guess, the pond
'40'S and early '40's, as
'40'S, as I mentioned
'40'S? A. In the
'40'S, yes. Okay.
40'S, but tests were run

PG LN '50'S*

8 11 was probably in the late
8 16 that seminar in the late
24 17 moved about in the early
25 1 until 1950, in the
28 15 was done about when, the
28 17 you said? A. Early
33 12 when? A. In the late
39 22 time? A. In the early
42 11 late '60's? A. Late
42 12 Late '50's. Q. Late
54 18 you saw it? A. Early
80 8 designed? A. Early
92 18 one installed again, early
92 19 ? A. I would guess late
104 22 which was in the early
106 9 , which would be in the
106 20 I think was in the mid
106 22 Q. So probably the late
119 2 in I believe the late
143 24 in the late '40's or early

'50'S, maybe the early
'50'S or early '60's?
'50'S, say, and the plant
'50'S. Q. If you
'50'S I believe you said?
'50'S I think. Might
'50'S I would say, maybe
'50'S, '51, '52,
'50'S. Q. Late '50's
'50'S. I'm sorry. A.
'50'S when I made a trip.
'50'S. Q. Were these
'50'S? A. I would
'50'S. But I'm not sure
'50'S. Q. Did you
'50'S. Q. Did you
'50'S. I don't know. I
'50'S? A. Probably,
'50'S and the ground was
'50'S I was registered.

PG LN '50'S*

157 20 was designed in the early '50'S? A. No. The
 178 8 A. It had to be in the '50'S. It might have
 202 17 were at the plant in the '50'S, did you ever
 204 20 must have happened in the '50'S that this happened.
 289 5 say it was in the early '50'S. That is a guess.
 292 9 you doing in the early '50'S to connect up tubes
 292 16 switched? A. Oh, the '50'S you're talking
 292 16 you're talking about. The '50'S. What did we do?
 297 7 made a trip during the '50'S for the boiler?
 298 10 Lauck was sent out in the '50'S to look at the
 301 22 system back in the mid '50'S? A. It was part
 308 18 know, somewhere in the '50'S or '60's. I don't
 331 7 that high? A. Late '50'S I'd say. Q. Do
 331 17 frame it was in the late '50'S because I was
 331 18 I was involved or middle '50'S. I don't know.
 346 12 ? A. It was in the '50'S somewhere.
 347 16 high Btu content. In the '50'S when the residue of
 367 21 ? A. Oh, from late '50'S to maybe the mid
 387 7 But that was in the mid '50'S, late '50's. I
 387 7 was in the mid '50's, late '50'S. I don't know
 399 21 ? A. In the late '50'S or somewhere around
 400 2 in '63 instead of late '50'S. All right. I
 403 18 which was in the mid '50'S, wasn't it, I
 439 2 installed in the '50'S. There were
 459 1 '60's? A. Either the '50'S or '60's. I don't
 462 25 , but tests were run in the '50'S and Mr. Justin ran
 489 8 water until about middle '50'S, you know. Q.
 525 3 ? Q. About the mid '50'S. A. He might
 531 16 until sometime in the mid '50'S when the transition

PG LN '60'S*

8 12 '50's, maybe the early '60'S. Q. What was
 8 16 in the late '50's or early '60'S? A. Well, okay.
 29 25 I think it was the early '60'S we replaced all
 33 12 I would say, maybe early '60'S, somewhere around
 35 23 Let's see. I thing early '60'S. Q. Did you
 42 10 That you said was the late '60'S? A. Late '50's
 92 21 I would say maybe early '60'S. Q. These were
 110 23 at the plant? A. Farly '60'S I think. It may
 142 1 early 1970's, you -- A. '60'S I think. Well,
 142 2 wait a minute. Middle of '60'S. Somewhere around
 142 3 there. Q. Middle '60'S. And your job
 142 6 might have been the late '60'S. It's when Mr.
 147 17 early '70's, maybe late '60'S. Q. Did you
 178 9 have been in the early '60'S. It may have been
 186 12 wells. Q. In the late '60'S there was some
 289 9 about the very early '60'S. Q. In both
 292 14 Q. No. That was in the '60'S, wasn't it, that

PG LN '60'S*
 197 4 back. I did in the early
 197 16 was the work done in the
 308 19 , somewhere in the '50's or
 316 7 it back. Make it the
 316 7 one trip. Yeah. Late
 343 24 you converted in the early
 344 1 date was. I said early
 344 3 why I guessed it was early
 346 21 ? I'd say in the early
 367 21 '50's to maybe the mid
 361 7 time this -- A. In the
 372 11 dates. But I know in the
 337 20 were written in the
 339 2 scrubbers installed in the
 358 25 Q. Would that be in the
 359 1 A. Either the '50's or
 363 1 of tests in about the
 '60'S when we were
 '60'S in connection with
 '60'S. I don't
 '60'S. I forgot about
 '60'S. BY MR. HIRD: Q.
 '60'S? A. To the best
 '60'S. I was trying to
 '60'S is one of my later
 '60'S. Q. A good
 '60'S. Q. Do you have
 '60'S. It was elevated.
 '60'S the city of Saint
 '60'S and the plant was
 '60'S. You know,
 '60'S? A. Either the
 '60'S. I don't remember
 '60'S. The settling

PG LN API*
 38 22 pitch I would say. Q.
 38 23 say. Q. Apiece? A.
 45 21 was before the days of the
 45 22 basin. I never heard of an
 79 13 at Indianapolis is a true
 79 15 the method of designing an
 79 21 Q. So you designed the
 80 9 . Q. Were these both
 80 10 ? A. They were modified
 80 13 differences between an
 80 16 to the separator. In an
 82 8 A. On the bottom of the
 83 19 building which is an
 85 18 built in a plant, but an
 85 20 the site? A. Well, the
 86 1 20A -- A. That's an
 86 2 an API. Q. -- is an
 88 21 . Q. Why wouldn't an
 92 14 separators on the
 92 22 '60's. Q. These were all
 93 6 Q. Do you know when the
 159 21 involved in building the
 162 11 start. We designed an
 191 2 First of all we put in an
 277 18 them according to the
 324 8 . Q. Cleveland had an
 324 9 had an API? A.
 335 1 into the Cleveland plant an
 335 15 in Minnesota 48 that an
 APIECE? A. Apiece,
 APIECE, yes. Q. How
 API settling basin. I
 API settling basin until
 API basin. At that
 API basin. It had
 API basin to replace the
 API separators? A.
 API separators because
 API separator and the
 API separator it's
 API separator they move
 API basin. Then down
 API separator can be
 API separator and the
 API. Q. -- is an API.
 API. That stands for
 API separator be more
 API format in
 API design separators?
 API design for a
 API settling basin at
 API separator and then
 API separator. We
 API instructions and we
 API? A. API type
 API type basin, yes.
 API style separator?
 API style separator like

PG LN API*
 136 10 that a Cleveland style
 196 19 before we installed an
 197 14 All right. Q. Was an
 314 18 . Q. Is this the new
 314 25 Hird keeps referring to an
 315 6 could be called a true
 315 8 , better than the home-built
 315 11 more sophisticated than an
 315 18 was using the basic
 315 20 why I referred to it as an
 315 25 . Q. I'm referring to
 316 4 proposed that the Edens or
 316 25 -- I'm sorry. Would the new
 317 10 of the area where the
 317 21 but since we don't have the
 320 4 oil-water separator, the
 326 13 I think. Q. Why was the
 336 20 were based on the
 337 3 standards adopted by the
 337 5 standards proposed by the
 337 17 fire standards proposed by
 338 1 recommendations of the
 338 2 of the API. Q. Did the
 API separator be
 API settling basin and
 API separator ever
 API settling basin that
 API separator that you
 API separator or not.
 API separator. It's a
 API separator. MR.
 API separator design.
 API separator. A.
 API too to indicate the
 API separator be
 API separator be
 API or Edens separator
 API separator actually
 API oil-water separator,
 API or Edens separator
 API code for building
 API in 1965, the Saint
 API? MR.
 API in 1965, the Saint
 API. Q. Did the API
 API in the '65 standards

PG LN BOYLE*
 156 16 It doesn't look like Robert
 311 25 ahead. A. Mr. R. J.
 312 8 . Mr. Horner and Mr.
 400 7 by H. L. Finch to R. J.
 413 1 be a memorandum from R. J.
 413 5 in United States 15 Mr.
 413 9 was the letter that Mr.
 413 14 look closely at U.S. 15 Mr.
 413 17 a copy attached to Mr.
 413 20 In United States 15 Mr.
 414 4 ? A. Herb Finch and Bob
 415 4 Minnesota 82 a reply to Mr.
 433 25 , in Minnesota 48 Mr.
 434 7 problem of contaminants Mr.
 434 16 the city sewer. Q. Mr.
 435 7 827 A. Yes. Q. Mr.
 435 14 your understanding that Mr.
 435 19 Would you agree with Mr.
 436 2 . Mr. Hennessy, Mr.
 436 9 recall. Q. Was Mr.
 443 18 from P. E. White to R. J.
 528 7 this one. I see is S. C.
 532 22 to be a letter by R. J.
 BOYLE'S. I don't know
 BOYLE was in charge of
 BOYLE worked together on
 BOYLE dated April 17,
 BOYLE to R. J. Hennessy
 BOYLE refers to
 BOYLE is referring to
 BOYLE says that he sent
 BOYLE'S letter. I did
 BOYLE asks you to
 BOYLE. I'm sure those
 BOYLE'S letter which is
 BOYLE refers to the
 BOYLE was referring to
 BOYLE mentioned that
 BOYLE'S view was that
 BOYLE was suggesting in
 BOYLE that the
 BOYLE in Minnesota
 BOYLE'S suggestion that
 BOYLE on Reilly Tar and
 BOYLE. There is a name
 BOYLE to R. A. Brewster

PG LN BOYLE*
 533 3 don't know. Q. Was Mr.
 533 8 States 22 written by Mr.
 533 15 In United States 22 Mr.
 533 22 -- go ahead. Q. Mr.
 549 5 R. J. Hennessy to R. J.

BOYLE at this time a
 BOYLE in the course of
 BOYLE refers to certain
 BOYLE refers to a
 BOYLE. A. Yes.

PG LN CHATTANOOGA*
 80 6 under my direction both for
 92 16 and somewhere else. A.
 92 17 A. Chattanooga. Q.
 92 20 sure. Q. When was the
 93 15 Indianapolis, Cleveland and
 259 10 you who designed the one at

CHATTANOOGA and for
 CHATTANOOGA. Q.
 CHATTANOOGA. When were
 CHATTANOOGA one
 CHATTANOOGA separators,
 CHATTANOOGA. I think

PG LN CISLAK*
 198 14 . That's right. Doctor
 198 16 . Q. How do you spell
 198 17 do you spell Cislak? A.

CISLAK was still there
 CISLAK? A.
 C-I-S-L-A-K. Q. Does

PG LN CLEVELAND*
 15 6 a naphthalene plant at
 18 20 , the naphthalene plant at
 80 6 for Chattanooga and for
 92 15 format in Indianapolis, in
 92 17 . When were the
 93 15 , the Indianapolis,
 190 16 pretty well solved at the
 190 21 The flow from the plant in
 190 25 problem was solved at the
 191 7 to enter the city sewer.
 191 14 They had some laboratory in
 191 25 watch it. Q. So the
 259 9 designed the one at
 423 5 basin similar to the
 423 19 basin similar to that in
 423 24 basin similar to the one in
 423 25 What was distinct about the
 424 1 Cleveland basin? A. The
 424 5 we just copy exactly what
 424 5 to base the design on the
 424 8 worked very well. Q.
 424 11 a larger basin existed at
 424 13 ? A. Yes. Because the
 424 16 -- in fact, I believe
 425 12 concrete basin similar to
 425 13 , do you mean one as big as

CLEVELAND. We built a
 CLEVELAND there was an
 CLEVELAND. Q. At
 CLEVELAND and somewhere
 CLEVELAND one installed
 CLEVELAND and
 CLEVELAND plant." The
 CLEVELAND. Q.
 CLEVELAND plant? A.
 CLEVELAND did the same
 CLEVELAND test it. But
 CLEVELAND plant is in
 CLEVELAND. I couldn't
 CLEVELAND basin but high
 CLEVELAND and would be a
 CLEVELAND? What was
 CLEVELAND basin? A.
 CLEVELAND basin handled
 CLEVELAND had but to
 CLEVELAND basin which
 CLEVELAND had an API?
 CLEVELAND, do you mean
 CLEVELAND plant was a
 CLEVELAND is our largest
 CLEVELAND, do you mean
 CLEVELAND or one along

PG LN	CLEVELAND*	
125 13	Cleveland or one along the	CLEVELAND design but
125 15	one that was installed at	CLEVELAND? A. The
125 18	not have been a copy of the	CLEVELAND basin. And
125 20	. If it was as big as the	CLEVELAND basin, we
129 11	as the installation at	CLEVELAND so heavy oils
130 5	pump that was used at	CLEVELAND? A. The
130 7	effective, but the one at	CLEVELAND had a hopper,
130 15	quit. Q. So with the	CLEVELAND settling basin
130 24	the hopper system at the	CLEVELAND plant
134 1	of contaminants at the	CLEVELAND plant, does he
134 8	was referring to at the	CLEVELAND plant? A.
134 11	, phenol and temperature at	CLEVELAND. O. Were
134 13	in the effluent leaving the	CLEVELAND plant? A.
134 18	pretty well solved at the	CLEVELAND plant. What
134 20	were pretty well solved at	CLEVELAND? A. We put
134 25	basin that you put into the	CLEVELAND plant an API
135 4	a basin similar to	CLEVELAND'S in State
135 9	problem of contaminants at	CLEVELAND Park. Did
135 10	assessment, I mean at the	CLEVELAND plant? A.
135 12	with it because the city of	CLEVELAND accepted our
135 16	like that installed at the	CLEVELAND plant be
136 9	Boyle's suggestion that a	CLEVELAND style API
136 16	in Minnesota 13, that a	CLEVELAND style
136 20	in Minnesota 82 that a	CLEVELAND style
110 9	we built the pitch plant at	CLEVELAND he was very

PG LN	COURTNEY*	
108 2	one question? Who was Mr.	COURTNEY, if you know?
107 25	I would suspect that Doctor	COURTNEY might. I know
108 14	O. You mentioned that Mr.	COURTNEY had a doctorate
108 18	referred to him as Doctor	COURTNEY. A. If I

PG LN	DANZ*	
185 15	recall what position Mr.	DANZ held as of the date
185 18	, but I'm quite certain Mr.	DANZ at that time ran
185 24	what he was. Q. Mr.	DANZ here says that the
186 10	have that tendency that Mr.	DANZ describes? A.

PG LN	EDENS*	
83 20	, "We're going to use an	EDENS separator."
83 21	beside the point. An	EDENS separator is just
84 10	letter is talking about an	EDENS separator which is
84 20	. The memo mentions an	EDENS separator. It
85 3	letter is talking about an	EDENS separator and this
85 4	drawing doesn't show an	EDENS separator. O.
85 15	20A is not necessarily an	EDENS separator. But

PG LN EDENS*

85 16 the difference between an EDENS separator is an
85 17 an Edens separator is an EDENS separator is a
85 19 separator can be either an EDENS separator or an
85 20 , the API separator and the EDENS separator have
160 12 , we were going to put in an EDENS separator. We
160 20 the plant close before the EDENS separator was
160 22 was installed? A. The EDENS separator was
161 9 Q. With regard to the EDENS separator, were
161 21 sewer you would install the EDENS separator? A.
162 9 in those matters, the EDENS separator and the
162 12 then we heard about this EDENS separator which is
162 22 to sit -- the bottom of the EDENS separator was
174 24 that into account with the EDENS separator though
175 5 and the planning for the EDENS separator there
199 13 in the design of the EDENS separator and that
199 16 ? We've talked about the EDENS separator. We've
201 6 operation which was true. EDENS separator is built
258 20 When we did the work on the EDENS separator. Q.
315 1 you referred to an EDENS separator. Which
315 3 one? THE WITNESS: EDENS is a trade name of
315 6 me. I don't know whether EDENS could be called a
315 14 THE WITNESS: It's the EDENS separator, yes.
315 17 testified earlier that an EDENS separator was
315 23 yes. Q. But EDENS is a brand name?
315 24 is a brand name? A. EDENS is a brand name,
316 4 was it proposed that the EDENS or API separator
317 10 the area where the API or EDENS separator was
317 17 going to locate the new EDENS separator on the
326 13 Q. Why was the API or EDENS separator never
345 7 installation of the EDENS separator? A.
346 2 the cost of installing an EDENS separator at the
346 10 for the installation of the EDENS separate was

PG LN EDWARDS*

37 14 you. That was called the EDWARDS still. What if
158 9 he wrote a letter to Mr. EDWARDS and Mr. Edwards
158 10 to Mr. Edwards and Mr. EDWARDS asked Mr. Horner
235 16 Q. But you knew Mr. EDWARDS? A. Oh, yes,
235 17 ? A. Oh, yes, I knew Mr. EDWARDS very well. Q.
235 18 well. Q. What would Mr. EDWARDS' position have
235 20 at this time? A. Mr. EDWARDS was Mr. Reilly's
253 22 from A. E. Larkin to C. B. EDWARDS dated July 11,
254 11 time know Mr. Horner, Mr. EDWARDS and Mr. Larkin
254 17 Yes. This looks like Mr. EDWARDS' signature. I
254 21 to Minnesota 80, when Mr. EDWARDS discusses a
258 7 days after U.S. 1. Mr. EDWARDS in Minnesota 80
258 10 you understand what Mr. EDWARDS is construing

PG LN	EXPLODE*	
144 20	any way that tar from the	EXPLODED tank could have
145 5	. Q. However, would the	EXPLODED pitch have been

PG LN	EXPLOSION*	
197 22	problem lead, potentially to	EXPLOSIONS at these
197 24	rare, but it could lead to	EXPLOSIONS in the stills
198 3	have any knowledge of any	EXPLOSIONS of any kind
198 5	Park? A. They had an	EXPLOSION in a pitch
198 7	Could you describe that	EXPLOSION to the best of
199 18	but ruptured. It was an	EXPLOSION. Q. Do you
199 19	have any idea of when this	EXPLOSION occurred? A.
100 16	14 describe the pitch tank	EXPLOSION which you were
100 19	was the Granite City	EXPLOSION after reading
100 20	this. I think that	EXPLOSION, and again I'm
100 21	, but I believe this	EXPLOSION since there
102 3	this happens you get an	EXPLOSION. I mean, the
102 8	have been a very low class	EXPLOSION for that type
102 8	explosion for that type of	EXPLOSION because it
102 10	Q. Is your account of the	EXPLOSION based on a
102 12	? A. My account of the	EXPLOSION is just based
102 14	pitch and what causes	EXPLOSIONS. Q. So
102 20	must have been a different	EXPLOSION because when
102 21	because when you have an	EXPLOSION due to water.
102 25	with Mr. Finch about this	EXPLOSION? A. I'm
103 2	with Mr. Finch about the	EXPLOSION. I don't
103 4	about it. Q. Would this	EXPLOSION as described
103 17	Do you recall any other	EXPLOSIONS at Saint
103 19	I thought they had a steam	EXPLOSION in a pitch
103 21	knew they had a pitch tank	EXPLOSION. I can only
103 22	. I can only remember one	EXPLOSION, but if
103 24	-- Q. Do you recall	EXPLOSIONS anywhere else
104 1	recall any. No boiler	EXPLOSIONS. Q. When
144 1	you could recall only one	EXPLOSION at Saint Louis
144 5	? A. Evidently the	EXPLOSION I described
144 6	at Saint Louis Park is this	EXPLOSION. Q. So you
144 7	you recall now at least two	EXPLOSIONS -- A. Yes
144 11	guy had fire, that first	EXPLOSION we talked
144 14	Mr. Hennessy, is this the	EXPLOSION that earlier
144 19	and your knowledge of the	EXPLOSIONS, is there any
145 11	find in this sort of an	EXPLOSION, how much
585 20	boil over or some sort of	EXPLOSION. Liquid from
513 21	certainly never caused any	EXPLOSION because I
513 22	I don't know of any boiler	EXPLOSIONS at Saint

PG LN	FENOGLIO*	
33 6	was this man? A. Ruddy	FENOGLIO. Q. Did he
209 24	at the piping? A. Mr.	FENOGLIO went. Sent

PG LN FENOGLIO*
 210 3 or by telephone? A. Mr.
 259 8 time was. A. Yes. Mr.
 259 10 Chattanooga. I think Mr.
 259 13 of those designs with Mr.
 378 17 No, I did not. I sent Mr.
 378 18 Q. Do you know where Mr.
 389 5 But now in the trenches Mr.
 389 19 ? A. Yes. Mr.
 394 8 for the contractor and Mr.
 395 20 water? A. I'm sure Mr.
 406 11 accomplished? A. Mr.
 448 14 there is a reference to Mr.
 448 15 . Was this the same Mr.
 450 19 Finch suggesting that Mr.
 451 1 yes. Q. Was Mr.
 451 19 on it. I know Ruddy
 461 2 ? A. Well, either Mr.
 461 3 which, I believe it was Mr.
 463 2 basin. This is when Mr.
 463 5 Okay. O. So when Mr.
 463 6 there the water, when Mr.

FENOGLIO was a very
 FENOGLIO designed the
 FENOGLIO probably
 FENOGLIO? A. Yes.
 FENOGLIO. O. Do you
 FENOGLIO is today? A.
 FENOGLIO went to the
 FENOGLIO made one and I
 FENOGLIO was in and out
 FENOGLIO visited the
 FENOGLIO was there
 FENOGLIO preparing a
 FENOGLIO who worked as
 FENOGLIO be taken off
 FENOGLIO at that time
 FENOGLIO worked on that
 FENOGLIO or Mr. Lauck, I
 FENOGLIO did the work.
 FENOGLIO was there. O.
 FENOGLIO was there the
 FENOGLIO elevated the

PG LN FINCH*
 19 5 with Mr. Holstrom or Mr.
 82 20 ostensibly from you to Mr.
 83 7 identified I think by Mr.
 119 8 first, I believe, and then
 122 17 is a -- and I believe Herb
 123 21 WITNESS: I think if Herb
 165 8 up in Minneapolis. Herb
 168 17 A. I don't know what Herb
 183 21 of the comments made by Mr.
 183 25 got page 23. Is this Mr.
 199 5 Wheeler? A. Well, Mr.
 200 25 any discussions with Mr.
 201 2 discussed it with Mr.
 201 11 you may have had with Mr.
 202 9 you're not sure what Mr.
 208 13 in the first paragraph Mr.
 210 1 have told you and what Mr.
 239 17 a questionnaire sent to Mr.
 239 24 questionnaire from Mr.
 240 2 , Minnesota 10, as Mr.
 240 4 Could you recognize Mr.
 240 9 I doubt that it is Mr.
 374 13 Q. In this document Mr.
 378 12 -- it leaked. O. Mr.
 379 9 A. All right. Q. Mr.

FINCH? A. I'm sure
 FINCH dated September 30
 FINCH came without a
 FINCH and then Bill
 FINCH in his deposition
 FINCH used the term
 FINCH hired them to do
 FINCH did with the
 FINCH at the meeting.
 FINCH saying -- Q.
 FINCH says here that
 FINCH to further prepare
 FINCH. I can't
 FINCH or anyone else?
 FINCH may have meant by
 FINCH references product
 FINCH might have told
 FINCH asking him to
 FINCH? A. Oh, yes.
 FINCH'S handwriting?
 FINCH'S handwriting
 FINCH'S handwriting is
 FINCH refers to the
 FINCH in the State
 FINCH, do you recall

PG	LN	FINCH*	
394	6	removal. Q. But Mr.	FINCH arranged it and
394	7	and supervised? A. Mr.	FINCH I believe arranged
394	19	be a memorandum from H. L.	FINCH to H. R. Horner
395	1	a document written by Mr.	FINCH in the course of
395	7	of United States 13. Mr.	FINCH says he is
395	17	or to consult with Mr.	FINCH about the removal
396	9	of United States 13 Mr.	FINCH refers to problems
400	7	to be a memorandum by H. L.	FINCH to R. J. Boyle
400	12	a document prepared by Mr.	FINCH when he was plant
402	11	on a conversation with Mr.	FINCH about it? A.
402	24	you recall talking with Mr.	FINCH about this
403	1	I'm sure I talked with Mr.	FINCH about the
403	5	as described by Mr.	FINCH propel pitch or
405	24	Okay. Which lines was Mr.	FINCH referring to when
406	7	new lines. Q. Had Mr.	FINCH requested several
407	20	reason to believe that Mr.	FINCH is not accurate in
408	10	. Q. Is that why Mr.	FINCH says that he and
409	23	in. Q. Why would Mr.	FINCH be concerned in
411	20	In item 5 in this list Mr.	FINCH says that, "One of
413	7	30th received from H. L.	FINCH. I'd ask you to
413	18	did not receive it from Mr.	FINCH. All right. I
414	4	complaint? A. Herb	FINCH and Bob Boyle.
414	11	it's correct. But if Herb	FINCH says Mr. Goldblatt
414	14	it. Q. What did Mr.	FINCH tell you when you
415	19	told to you by Mr.	FINCH? A. I called
415	20	? A. I called Mr. Herb	FINCH. It says this
415	21	all came from Mr.	FINCH who is much more
415	23	than I was. Q. Did Mr.	FINCH also tell you as
416	2	did. Q. Did Mr.	FINCH further tell you
416	13	as information from Mr.	FINCH and others? A.
445	21	of Minnesota 30 Mr.	FINCH refers to
446	6	in the trenches that Mr.	FINCH had expressed some
446	9	Yes, um-hum. Q. Mr.	FINCH refers in the
446	12	locate. Do you recall Mr.	FINCH ever discussing
446	15	any reason to doubt Mr.	FINCH'S accuracy about
447	9	sediment, yes. Q. Mr.	FINCH goes on to say
449	3	been filled. Q. Mr.	FINCH goes on to say,
449	6	project." Is what Mr.	FINCH is saying there is
449	23	A. I think so. Q. Mr.	FINCH goes on to say
450	3	Yes, I was. Q. Is Mr.	FINCH correct that ?
450	19	remember. Q. Was Mr.	FINCH suggesting that
451	9	page of Minnesota 30, Mr.	FINCH refers to the
451	16	ground tanks which Mr.	FINCH refers to? A.
452	19	paragraphs where Mr.	FINCH states that, "In
452	23	the lines." What was Mr.	FINCH referring to when
453	24	, right at the bottom. Mr.	FINCH says that, "Lines
453	25	repaired easily." Is Mr.	FINCH referring here to
455	1	in number 30 this page Mr.	FINCH says, "The present
455	14	4, the second sentence, Mr.	FINCH says that, "This -

PG	LN	FINCH*	
155	16		What was Mr.
156	11	would, um-hum.	Q. Mr.
156	20	Park at the time that Mr.	FINCH then says that,
156	22	that it was.	FINCH wrote Minnesota
157	15	you have any sense what Mr.	FINCH then goes on to
165	8	operating the basin to Herb	FINCH was referring to
165	8	Finch -- or not to Herb	FINCH -- or not to Herb
168	5	refers to a call from Mr.	FINCH but David Larkin
168	5	call from Mr. Finch.	FINCH. Mr. Finch at
168	9	that was told to him by Mr.	FINCH at that time was
168	18	in the main office and Mr.	FINCH in that
168	22	As plant manager would Mr.	FINCH'S office was in
168	25	settling basin?	FINCH be in the best
169	7	his conversation with Mr.	FINCH would know more
172	19	plant. I remember Herb	FINCH?
180	4	settling basin?	MS.
180	7	responsibility. How Mr.	FINCH, "What the hell's
182	12	But I don't know what Mr.	FINCH obviously had an
198	5	from T. E. Reilly to H. L.	FINCH ran his plant I
302	10	referring here -- Mr.	FINCH did. I have no
302	24	. Q. Thank you.	FINCH dated June 4, 1968
303	3	strike the question.	FINCH says that, "The
303	20	observed anything which Mr.	FINCH goes on to say
303	24	up from the well as Mr.	FINCH says that the well
331	12	from T. E. Reilly to Herb	FINCH might consider a
340	22	from W. R. Wheeler to H. L.	FINCH suggests or if
377	18	This was written by Mr.	FINCH dated September 5,
377	23	at that time.	FINCH dated December 8,
379	20	of the pond. Now, Mr.	FINCH in 1970. It
306	17	know. A. Well, Herb	FINCH is correct and
324	24	the air lift other than Mr.	FINCH does say in this
324	25	than Mr. Finch?	FINCH would not know
325	1	I don't know. When did Mr.	FINCH?
			A. Mr. Finch
			FINCH probably wouldn't.
			FINCH come to the plant?

PG	LN	GOLDBLATT*	
113	22	water made by a Mr.	GOLDBLATT, does he not?
113	25	. I never talked with Mr.	GOLDBLATT, no. O.
114	2	did you talk with about Mr.	GOLDBLATT'S complaint?
114	6	Minnesota 24 refers to Mr.	GOLDBLATT as owning a
114	11	But if Herb Finch says Mr.	GOLDBLATT owned that
114	15	talked with him about Mr.	GOLDBLATT'S complaint
114	19	on the ground around Mr.	GOLDBLATT'S building or
114	19	or whatever it was Mr.	GOLDBLATT had. Q.
115	8	82 you state that, "Mr.	GOLDBLATT'S property is
115	12	the highway and around Mr.	GOLDBLATT'S property."
115	18	the swampy part of Mr.	GOLDBLATT'S land." Is
115	22	much more familiar with Mr.	GOLDBLATT'S property
116	3	colored black or rather Mr.	GOLDBLATT'S land was

PG LN GRUENHAGEN*
 167 10 memorandum from T. O. (sic)
 167 16 Q. Who was T. O. (sic)
 167 17 ? A. It's really T. C.
 167 19 Q. What years was Mr.
 167 22 have any idea of what Mr.
 168 25 of the document state Mr.
 169 5 Q. I see that Mr.
 169 13 what it is. Q. Mr.
 169 22 , no. No, I don't. Mr.
 170 1 . That's what Mr.
 170 13 BY MR. HIRD: Q. Mr.
 172 22 plant operation that Mr.
 173 6 it is. Q. I believe Mr.
 173 22 BY MR. HIRD: Q. Did Mr.

GRUENHAGEN to H. R.
 GRUENHAGEN? A. It's
 GRUENHAGEN. He was an
 GRUENHAGEN at the
 GRUENHAGEN did after he
 GRUENHAGEN'S results of
 GRUENHAGEN refers to the
 GRUENHAGEN also refers
 GRUENHAGEN was a
 GRUENHAGEN was measuring
 GRUENHAGEN also mentions
 GRUENHAGEN tested, it
 GRUENHAGEN refers to a
 GRUENHAGEN read German?

PG LN HOLSTROM*
 19 5 any disagreement with Mr.
 28 10 would be Mr. Larkin or Mr.
 28 12 , no one subordinate? A.
 119 7 with? A. I talked with
 298 25 from T. E. Reilly to H. L.
 302 20 from T. E. Reilly to H. L.
 303 8 books. Q. What was Mr.
 303 9 at this time? A. Mr.
 310 12 from H. R. Horner to H. L.
 334 14 , F. J. Mootz and H. L.
 351 11 from F. J. Mootz to H. L.
 351 18 manager. Q. Mr.
 352 16 -- states to Mr.
 353 11 he's suggesting that Mr.
 325 5 it out, isn't it? So Mr.

HOLSTROM or Mr. Finch?
 HOLSTROM. Q. No one
 HOLSTROM I think was
 HOLSTROM first, I
 HOLSTROM dated February
 HOLSTROM dated September
 HOLSTROM'S position at
 HOLSTROM was the plant
 HOLSTROM dated May 26,
 HOLSTROM. Q. But you
 HOLSTROM dated March 3,
 HOLSTROM was at the time
 HOLSTROM that he,
 HOLSTROM pour the zinc
 HOLSTROM is deceased.

PG LN HORNER*
 18 17 Q. Do you remember Mr.
 18 21 between Shulty (ph.) and
 18 22 came along. Where Mr.
 19 3 Q. Did you or Mr.
 46 10 on. Q. What was Mr.
 48 5 did. Q. At the time Mr.
 50 3 easy to do. Q. Did Mr.
 50 6 in. I don't know that Mr.
 54 4 , yes. Q. By whom, Mr.
 75 17 , did you talk to either Mr.
 75 22 Q. Did you relay to Mr.
 77 4 I got into that. Q. Mr.
 91 17 time was selected by Mr.
 102 22 attachment signed by Mr.

HORNER ever doing that?
 HORNER where it should
 HORNER wanted it we put
 HORNER or anyone in the
 HORNER'S involvement in
 HORNER gave you the
 HORNER design the weir?
 HORNER designed a weir
 HORNER? A. I suppose
 HORNER or to people at
 HORNER any ideas or
 HORNER was the project
 HORNER in your design?
 HORNER. A. Which

PG.	LN	HORNER*	
103	10	Exhibit, page signed by Mr.	HORNER for a moment, he
115	4	? A. Yes. Q. Was Mr.	HORNER involved at all
142	6	'60's. It's when Mr.	HORNER retired, whenever
142	9	chief engineer after Mr.	HORNER retired? A.
142	10	that is correct. Now, Mr.	HORNER was still chief
142	15	sense of how many years Mr.	HORNER was still at
142	23	is one which references Mr.	HORNER as an attendee at
142	25	you can recall, would Mr.	HORNER have been chief
144	16	more chief engineers. Mr.	HORNER was one. Mr.
145	13	four engineers plus Mr.	HORNER who was the chief
158	7	obviously he's asked Mr.	HORNER for -- well,
158	10	and Mr. Edwards asked Mr.	HORNER to prepare an
178	15	-- I think my report to Mr.	HORNER telling how it
203	15	. But in Indianapolis Mr.	HORNER and I had a
204	1	believe it. Q. So Mr.	HORNER convinced you?
204	15	one you looked at with Mr.	HORNER? A. Well, it
219	2	one sheet supplement by Mr.	HORNER. I believe Mr.
219	3	Mr. Horner. I believe Mr.	HORNER when he described
222	2	anybody at that time, Mr.	HORNER or anyone else
223	11	, Mr. Mitchell and Mr.	HORNER still living?
254	10	you at this time know Mr.	HORNER, Mr. Edwards and
255	21	that after meeting with Mr.	HORNER he learned that
257	24	Do you know whether Mr.	HORNER or anyone working
259	24	81 was written was Mr.	HORNER chief engineer --
260	0	regularly prepared by Mr.	HORNER in the course of
260	14	right, yes. Q. Mr.	HORNER begins his letter
261	1	remember it. Q. Mr.	HORNER worked with you
261	8	. Q. When Mr.	HORNER says in the
261	22	basin. Q. It's Mr.	HORNER'S term. I want
261	25	A. Yes, he is. Q. Mr.	HORNER goes on to say,
262	25	? Q. I don't think Mr.	HORNER has used it in
263	2	I was wondering whether Mr.	HORNER was referring to
264	7	again to Minnesota 81, Mr.	HORNER states that, "The
264	14	? A. Yes. Q. Mr.	HORNER goes on to say
265	11	? A. That's what Mr.	HORNER'S letter says,
268	9	the pipe. Q. Now, Mr.	HORNER in describing the
269	6	of this paragraph Mr.	HORNER talks about
271	19	read do you understand Mr.	HORNER'S concerns to be
273	4	basin. So what Mr.	HORNER is saying is run
274	5	his settling basin. Mr.	HORNER is writing a
274	22	anywhere in this letter Mr.	HORNER explicitly say
276	4	Q. I understand. Mr.	HORNER in the paragraph
276	16	to the next paragraph Mr.	HORNER suggests, "In
278	23	page of Minnesota 81, Mr.	HORNER says that, "Over
280	11	two paragraphs down Mr.	HORNER says that, "We
281	23	from the bottom Mr.	HORNER says, "For the
287	6	separator, did Mr.	HORNER or anyone else
309	19	11 was written Mr.	HORNER was chief
310	12	be a memorandum from H. R.	HORNER to H. L. Holstrom

PG LN HORNER*

310 19 it I'm sure. Q. Mr. HORNER at this time was
 310 21 chief engineer? A. Mr. HORNER was chief
 311 10 , yes. Um-hum. Q. Mr. HORNER in the second
 311 20 1944 or '43. Q. Was Mr. HORNER dealing with the
 312 7 the responsibility of Mr. HORNER. Mr. Horner and
 312 8 of Mr. Horner. Mr. HORNER and Mr. Boyle
 313 3 remember it would be Mr. HORNER. Q. Mr.
 313 4 be Mr. Horner. O. Mr. HORNER here says, as you
 313 8 of that phrase that Mr. HORNER believes that the
 316 10 7 to the next paragraph Mr. HORNER says, "I would
 316 18 know Mr. Holm. O. Mr. HORNER here recommends a
 316 20 in which case Mr. HORNER I believe says, "
 316 23 what type of operation Mr. HORNER is recommending
 317 21 from Mr. Lauck to Mr. HORNER. Based on your
 317 25 auspices as well as Mr. HORNER'S? A. On the
 318 4 and reporting back to Mr. HORNER. However, I did
 318 12 , you know, Mr. HORNER would ask me for
 324 10 suggests, and I believe Mr. HORNER earlier suggested
 324 23 your understanding that Mr. HORNER thought the tar
 325 10 at U.S. Number 7 and Mr. HORNER there, as you
 333 16 from J. A. Lauck to H. R. HORNER dated October 12,
 340 10 from J. A. Lauck to H. A. HORNER. Do you recall
 357 19 be a memorandum from H. R. HORNER to F. J. Mootz
 357 25 a memorandum written by Mr. HORNER in the course of
 358 9 messy situation that Mr. HORNER refers to that he
 366 12 Mr. Lauck and I believe Mr. HORNER referred to tar
 367 10 (sic) Gruenhagen to H. R. HORNER dated October 8,
 394 20 from H. L. Finch to H. R. HORNER dated February 26
 395 9 department, preferably Mr. HORNER or yourself, Mr.
 431 23 I got overruled by Mr. HORNER or whether we
 458 6 to this deposition and Mr. HORNER'S deposition.
 506 18 younger than I am. Mr. HORNER might know

PG LN IRONTON*

165 10 , for Minneapolis and for IRONTON. Then there
 165 11 there was a lawsuit up at IRONTON against the Army
 165 13 result is we had to file at IRONTON. So that was
 311 12 Reilly's risk on the IRONTON boilers a few
 311 16 its policy on the IRONTON boilers? A.
 312 10 Reilly's risk on the IRONTON boilers? A.
 312 11 boilers? A. On the IRONTON boilers because
 312 16 . I'd never been to the IRONTON plant. But I
 312 20 with what went into the IRONTON -- A. Well,
 312 25 about the rupture of the IRONTON boilers in
 313 5 out, that, "The pond at IRONTON became
 313 17 as to how the pond at IRONTON became
 313 19 was at the pond at IRONTON? THE
 314 21 occasion to investigate the IRONTON situation?

PG LN	IRONTON*	
315 3	the source of water at the	IRONTON facility?
315 5	Source of water at the	IRONTON facility was a
315 8	of water supply for the	IRONTON facility?
315 12	of water supply at the	IRONTON facility?
315 19	of water supply at the	IRONTON facility?
315 21	I wasn't involved at	IRONTON until very much
315 22	I was involved with the	IRONTON plant I'm sure
316 1	become involved with the	IRONTON facility then?
316 3	the first trip I made to	IRONTON was when? I.
PG LN	JUSTIN*	
319 8	then Finch and then Bill	JUSTIN. I talked with
322 13	of equipment. And Mr.	JUSTIN and I went and
340 5	talking about one that Mr.	JUSTIN installed
340 12	the impression that Mr.	JUSTIN'S used water.
341 7	before as the one that Mr.	JUSTIN may have
341 9	I really don't. But Mr.	JUSTIN I don't believe
341 10	he? I don't know when Mr.	JUSTIN went to the plant
343 1	from C. F. Leshar to W. A.	JUSTIN dated September 4
343 17	Must have been Mr.	JUSTIN'S idea. But why
343 22	recall ever questioning Mr.	JUSTIN about the
343 25	Pollution Curbs with Mr.	JUSTIN or anybody else
344 1	Do you know whether Mr.	JUSTIN was seeking
362 25	run in the '50's and Mr.	JUSTIN ran a bunch of
384 25	there are articles by Mr.	JUSTIN in there about he
PG LN	KEMPE*	
326 14	report who I believe is Mr.	KEMPE you will see at
327 1	What do you think Mr.	KEMPE meant by surface
327 22	confused because here Mr.	KEMPE refers to
330 10	outside of the plant Mr.	KEMPE was referring to?
331 16	covered with tar as Mr.	KEMPE observed in this
332 17	surface of the bog as Mr.	KEMPE apparently saw in
PG LN	LARKIN*	
28 10	A. Probably would be Mr.	LARKIN or Mr. Holstrom.
28 12	I think was subordinate to	LARKIN at that time.
47 24	remembered that because Mr.	LARKIN was plant manager
47 25	I ever talked to Mr.	LARKIN. I can't ever
158 3	with the letter from Mr.	LARKIN asking for design
158 7	for -- well, obviously Mr.	LARKIN saw the
158 14	I guess is that in 1951 Mr.	LARKIN may have been
158 24	. I don't even know Mr.	LARKIN had ever made
248 12	Mr. Mitchell to Mr. A. E.	LARKIN dated May 1, 1940
253 22	4 is a document from A. E.	LARKIN to C. B. Edwards
254 11	Horner, Mr. Edwards and Mr.	LARKIN to be employees

PG LN LARKIN*

254 18 . I can't vouch for Mr. LARKIN'S, but I'm sure

255 16 minute. Q. What was Mr. LARKIN'S position at

255 20 Q. In United States 4 Mr. LARKIN says that after

256 5 of any complaints from Mr. LARKIN or his staff in

256 9 any discussion with Mr. LARKIN about anything at

256 12 3 in United States 4 Mr. LARKIN says, "We must

256 15 indicate to you that Mr. LARKIN was concerned

256 21 parts of the paragraph Mr. LARKIN refers to a very

256 24 Would you believe that Mr. LARKIN was concerned

257 16 In the second paragraph Mr. LARKIN says, "We will

257 20 indicate to you that Mr. LARKIN'S view was that

258 1 would relieve this, Mr. LARKIN'S concern about

258 8 refers to a letter from Mr. LARKIN regarding

258 10 is construing from Mr. LARKIN'S letter to be

258 11 letter to be that Mr. LARKIN is requesting an

260 11 . Q. -- at the time Mr. LARKIN was plant manager

274 4 thing. First of all, Mr. LARKIN complained that

275 9 Park. He assumes that Mr. LARKIN is an intelligent

265 9 not to Herb Finch but David LARKIN when the basin

265 15 written instructions to Mr. LARKIN as to the

325 6 . He would know. Mr. LARKIN, I don't know

PG LN LAUCK*

288 20 man working for me, Mr. Joe LAUCK, installed boiler

289 4 Louis Park? A. When Joe LAUCK put the equipment

289 18 boiler. Q. Was Mr. LAUCK a member of your

289 24 kept in contact with Mr. LAUCK? A. What? Q.

290 1 kept in contact with Mr. LAUCK? Do you know

290 9 you know which company Mr. LAUCK works for

291 10 in about just before Joe LAUCK left the company,

292 19 Yeah. Exactly. A. Joe LAUCK installed a boiler

294 1 treatment program that Mr. LAUCK -- A. I

295 21 in connection with Mr. LAUCK'S work on the

295 23 boiler? A. Yes. Mr. LAUCK was also assisting

296 3 about how many trips Mr. LAUCK made to the plant

298 10 it in. Q. Before Mr. LAUCK was sent out in

301 23 of my activities with Mr. LAUCK doing the work,

311 2 . Q. I see that Mr. LAUCK is carbon copied

311 4 U.S. 7 and the copy to Mr. LAUCK that that U.S. 7

311 5 with a job that Mr. LAUCK was doing under

317 21 inspection report from Mr. LAUCK to Mr. Horner.

317 22 your recollection that Mr. LAUCK was at the Saint

318 15 of Minnesota Exhibit 18 Mr. LAUCK appears to be

319 8 correct. Okay. Q. Mr. LAUCK says that the pond

319 24 . It was muddy. Q. Mr. LAUCK goes on to say

320 17 Minnesota Exhibit 18, Mr. LAUCK says that, "The

322 23 room? A. Well, Joe LAUCK'S letter says it

323 9 page 3, Minnesota 18, Mr. LAUCK refers to cracks

PG	LN	LAUCK*	
123	17	page 3 of Minnesota 18	Mr.
124	9	water. Q. If as	Mr.
124	12	this water main that	Mr.
125	1	the water main which	Mr.
125	21	these mains that	Mr.
125	24	way I understand what	Mr.
126	3	the pipe. Q. Mr.	Mr.
126	14	it would. Q. -- that	Mr.
126	15	Are you talking about	Mr.
126	17	No. I'm talking about	Mr.
126	23	. Yes. Q. Which	Mr.
127	3	of Minnesota Exhibit 18	Mr.
127	24	the statement because	Mr.
128	7	and the pans which	Mr.
129	8	IV on Minnesota 18	Mr.
132	2	-- which is who? A. Joe	Mr.
132	3	A. Joe Lauck. C. Joe	Mr.
132	6	this disagreement with	Mr.
133	16	be a memorandum from J. A.	Mr.
134	5	inspection report that	Mr.
134	22	Arabic "2. Water"	Mr.
135	8	inch water main. Q. Mr.	Mr.
136	8	"5. Waste." Q. Mr.	Mr.
138	15	these trenches that	Mr.
138	20	down a little further	Mr.
140	10	, 1954 memorandum from J. A.	Mr.
140	16	a document written by	Mr.
140	21	U.S. 9, item 13, where	Mr.
141	16	? A. I can remember Joe	Mr.
142	3	Q. But when you heard	Mr.
142	8	Park, yes. Q. Was	Mr.
143	4	to ask you to go down	Mr.
150	20	were accomplished. And	Mr.
150	23	period of time after	Mr.
163	15	same steam lines that	Mr.
163	21	the same time, 1954, Mr.	Mr.
166	11	of documents in which	Mr.
161	2	either Mr. Fenoglio or Mr.	Mr.

LAUCK has a
 LAUCK suggests, and I
 LAUCK describes as being
 LAUCK describes in
 LAUCK is describing in
 LAUCK'S recommendation
 LAUCK refers earlier,
 LAUCK was describing?
 LAUCK'S recommendation?
 LAUCK'S discussion on
 LAUCK describes as
 LAUCK under the heading
 LAUCK was pretty
 LAUCK is describing here
 LAUCK refers to the
 LAUCK. Q. Joe Lauck
 LAUCK. That, "It may be
 LAUCK'S recommendation
 LAUCK to H. R. Horner
 LAUCK would have
 LAUCK states that,
 LAUCK goes on to say,
 LAUCK here identifies 7
 LAUCK is describing?
 LAUCK refers to a wooden
 LAUCK to H. A. Horner.
 LAUCK in connection with
 LAUCK discusses a
 LAUCK'S discussion with
 LAUCK talking on the
 LAUCK talking with Mr.
 LAUCK'S 13
 LAUCK here suggests that
 LAUCK'S memorandum to
 LAUCK was referring to
 LAUCK mentioned that
 LAUCK and I believe Mr.
 LAUCK, I can't remember

PG	LN	LESHER*	
35	10	these. Q. Was this the	LESHER still? A. Yes
35	12	know. Let's call it the	LESHER still. The
35	14	it. We'll call it the	LESHER still. I always
35	15	think of mark two as the	LESHER still. Q. I
35	17	I've just heard the phrase	"LESHER still" used.
36	5	, 15 and 16 were changed to	LESHER stills. Q.
42	22	converting the stills to	LESHER stills. What
192	21	A. Sounds to me like Mr.	LESHER was there when it

PG	LN	LESHER*	
193	12	work recommended by Mr.	LESHER and Mr. Hennessy.
151	17	was the predecessor of Mr.	LESHER. Yes, he was
179	13	During the deposition Mr.	LESHER testified that he
179	18	any conversations with Mr.	LESHER? MS.
180	5	you recall talking to Mr.	LESHER in or around 1961
180	10	III do you believe that Mr.	LESHER is here
181	5	marked "Waste Water" Mr.	LESHER states that, "The
181	15	correct, right. Q. Mr.	LESHER goes on to say,
182	23	paragraph on page 5 Mr.	LESHER says that, "The
183	14	at the plant agree with Mr.	LESHER'S assessment that
184	18	paragraph on page 5 Mr.	LESHER says, "The area
184	21	with dirt and tar." Is Mr.	LESHER here, to your
185	11	reason to believe that Mr.	LESHER'S observation of
185	13	? A. No. Because Mr.	LESHER as well he's a
187	9	was written. Q. Mr.	LESHER testified it was
187	15	you about them. Q. Mr.	LESHER says that, "With
188	9	State Exhibit Number 3, Mr.	LESHER describes the
188	21	and leaking pipes that Mr.	LESHER is referring to?
189	15	they started. Q. Mr.	LESHER says that, "The
190	8	State Exhibit Number 3, Mr.	LESHER refers to a
190	11	tank problem which Mr.	LESHER was discussing?
190	16	started leaking. Q. Mr.	LESHER refers to water
191	5	A. All right. Q. Mr.	LESHER describes water
192	11	great force. Q. Mr.	LESHER goes on to state
193	6	reason to believe that Mr.	LESHER was inaccurate
193	10	. There again I think Mr.	LESHER was pretty
193	13	reason to believe that Mr.	LESHER was inaccurate
159	8	? A. Same that Mr.	LESHER'S is now. He
174	25	to you at the time that Mr.	LESHER wrote it. Did
175	9	to it. Q. What was Mr.	LESHER'S position at
175	10	at this time? A. Mr.	LESHER succeeded Doctor
175	12	tar division. Q. Mr.	LESHER in his opening
175	25	No, I did not. Q. Mr.	LESHER refers to the
176	7	Q. So as of 1968 when Mr.	LESHER was visiting the
176	12	technology. Q. Mr.	LESHER says at the time
176	15	would indicate that Mr.	LESHER'S observations
177	3	of Minnesota 50 Mr.	LESHER refers to one of
178	1	. BY MR. HIRD: Q. Mr.	LESHER goes on to say,
178	14	copy of Minnesota 50. Mr.	LESHER goes on to say
178	16	was terrible." Is Mr.	LESHER here referring to
180	17	reason to believe that Mr.	LESHER'S statement that
180	20	statement? A. No. Mr.	LESHER observed it. I
180	23	argue with him. Q. Mr.	LESHER says that, "The
181	8	to clean it out. Q. Mr.	LESHER says at the final
188	13	? A. Well, if Mr.	LESHER says that a lot
191	23	work recommended by Mr.	LESHER and Mr. Hennessy
192	21	time of Minnesota 51 Mr.	LESHER was head of the
193	3	on the page. Mr.	LESHER states that he
193	12	this observation by Mr.	LESHER and Mr. Reilly

PG LN LESHER*

193 16 what he says. Q. Mr. LESHER goes on to say
 193 20 that observation by Mr. LESHER, was inaccurate?
 193 22 , the last letter of Mr. LESHER, said the same
 193 23 thing. Q. Finally Mr. LESHER says that the
 195 23 of State Exhibit 51. Mr. LESHER uses the phrase
 196 8 was installed. Q. Mr. LESHER finally says that
 196 15 would those steps that Mr. LESHER refers to as
 209 8 did, um-hum. Q. Mr. LESHER at this time was
 209 14 of Minnesota 90 where Mr. LESHER says that, "The
 211 1 Street. Q. If Mr. LESHER had any
 211 10 2 of Minnesota 51. Mr. LESHER says -- MS.
 211 17 ? Q. Um-hum. Mr. LESHER states that, "The
 212 4 Would the fact that Mr. LESHER has the same
 243 1 be a memorandum from C. F. LESHER to W. A. Justin
 243 20 United States 24 Mr. LESHER states he is

PC LN MAYWOOD*

213 7 some of them we took out at
 246 3 to those at Mobile and
 246 12 basin similar to Mobile and
 246 13 , would he be referring by
 254 24 that you constructed at the
 255 10 How much larger was the
 255 12 Park basin? A. The
 260 20 this letter. I know about
 261 10 the same size as the
 262 1 the two ponds is that
 262 3 the sludge make the
 262 8 "Shortly after starting the
 262 11 into in connection with the
 262 13 settling basin? A.
 264 16 in the bottom of the
 268 10 the settling basin at
 268 11 oil in our effluent in
 269 6 a straw filter at
 270 16 it could be piped in. At
 270 24 that was what was done at
 275 7 . He told how he did it at
 283 1 at the straw filter in
 283 2 in Maywood? A. In
 340 23 the maintenance program at
 340 25 the maintenance program in
 341 25 letter I gather that the
 323 6 to prevent flooding like
 323 8 is correct, yes. What?
 323 10 like Saint Louis Park.
 323 15 read, "But built high like
 323 21 had been constructed in

MAYWOOD, at Newark, New
 MAYWOOD." At the time
 MAYWOOD, would he be
 MAYWOOD to the settling
 MAYWOOD plant in 1948?
 MAYWOOD basin that you
 MAYWOOD basin I remember
 MAYWOOD'S problem which
 MAYWOOD settling pond
 MAYWOOD has a mechanical
 MAYWOOD settling basin
 MAYWOOD pond -- and I
 MAYWOOD settling basin?
 MAYWOOD was extracting
 MAYWOOD basin would have
 MAYWOOD says that, quote
 MAYWOOD with a gravity
 MAYWOOD which does an
 MAYWOOD it was piped in
 MAYWOOD, wasn't it? A.
 MAYWOOD and he doesn't
 MAYWOOD? A. In
 MAYWOOD? I would say
 MAYWOOD. Do you have
 MAYWOOD was? A. I
 MAYWOOD system was being
 MAYWOOD'S, is that
 MAYWOOD'S built high to
 MAYWOOD'S never flooded.
 MAYWOOD'S to prevent
 MAYWOOD? A. That is

PG LN MAYWOOD*
125 25 to prevent floodings like MAYWOOD. How high
126 1 above the ground did the MAYWOOD basin rise? A.
126 4 the top of the basin at MAYWOOD is at least 6
127 7 to prevent flooding like MAYWOOD'S be built at
127 8 Park. And by high like MAYWOOD'S you meant that
127 9 above the ground such as MAYWOOD'S was 6 feet
127 11 above the ground? A. MAYWOOD'S. I would guess
127 14 get into it. Q. Was MAYWOOD'S of 6 feet high
127 20 get into it? A. At MAYWOOD, yes. Q. A

PG LN MCADAMS*
155 11 on these. Q. Then Mr. MCADAMS was in the
155 12 accounting area? A. Mr. MCADAMS was -- well, if
155 13 Mr. Ryan was president, Mr. MCADAMS was chief
155 16 was not president then Mr. MCADAMS was what? A.
155 21 was. I don't know if Mr. MCADAMS was at this time

PG LN MCLELLAN*
135 12 Q. Do you know who Mr. MCLELLAN is? A. No.
138 19 testimony is that what Mr. MCLELLAN is referring to
142 16 not entirely clear what Mr. MCLELLAN is referring to
145 16 next to last paragraph Mr. MCLELLAN refers to about
146 1 at which point Mr. MCLELLAN says, "In 1929
146 24 Q. The next sentence Mr. MCLELLAN says that,
147 2 suggest to you that Mr. MCLELLAN was concerned
147 18 right. Q. So if Mr. MCLELLAN was concerned

PG LN MINNESOTA*
1 2 COURT DISTRICT OF MINNESOTA
1 6 Plaintiff, and State of MINNESOTA, by its
1 23 County of Hennepin State of MINNESOTA, taken on the
2 8 County Road B2, Roseville, MINNESOTA 55113,
2 9 , State of MINNESOTA. ALLEN
2 11 IDS Center, Minneapolis, MINNESOTA 55402,
2 14 Bank Place, Minneapolis, MINNESOTA 55402,
4 18 No. 29 587 MINNESOTA Exhibit No.
4 18 No. 20A 121 MINNESOTA Exhibit No.
25 3 to direct your attention to MINNESOTA Exhibit 9
25 6 think you could show us on MINNESOTA 9 where the
53 18 your attention again to MINNESOTA Number 9, is
73 11 Q. Could you designate on MINNESOTA Exhibit 9
82 19 Deposition Exhibit State of MINNESOTA 20. It's a
83 3 . Q. Do you recognize MINNESOTA 20? A. I
83 6 the drawing. The original MINNESOTA 20 when
83 12 in the opening line of MINNESOTA 20. Do you
83 14 that was attached to MINNESOTA 20? A. I

PG LN	MINNESOTA*	
84 1	in the first line of	MINNESOTA 207 If you
85 9	to my colleagues as	MINNESOTA 20A. (At
85 10	20A. (At this time	MINNESOTA Deposition
85 15	Hennessy, that the diagram	MINNESOTA 20A is not
85 25	Q. But this diagram	MINNESOTA 20A -- A.
86 6	you could on this drawing	MINNESOTA 20A just mark
107 21	to where there was tile on	MINNESOTA Exhibit 9?
123 25	MR. COYNE: You'll note on	MINNESOTA Exhibit 9
129 21	room. Q. Marked on	MINNESOTA Exhibit 9?
135 22	Q. Could you point on	MINNESOTA 9 to the
156 22	here is all of the State of	MINNESOTA Deposition
167 15	Louis Park and state of	MINNESOTA commenced a
187 11	any well in metropolitan	MINNESOTA? A. No.
187 18	wall in the metropolitan	MINNESOTA? A. Well,
201 15	? Q. -- said to the	MINNESOTA Pollution
218 17	43 which is comprised of	MINNESOTA 58 and 95 and
218 20	at? The State or the	MINNESOTA? Q. The
221 2	of that document from the	MINNESOTA Department of
221 16	seeing any documents by the	MINNESOTA Department of
221 22	memoranda, concerning the	MINNESOTA Department of
226 7	you to look again at the	MINNESOTA Department of
229 2	Q. You're referring to	MINNESOTA Exhibit 9 when
230 11	would help you to refer to	MINNESOTA 9, please do
235 4	you to take a look now at	MINNESOTA document
235 23	Would you from reviewing	MINNESOTA 79 and your
239 8	Take a moment to look at	MINNESOTA Number 10
239 11	Am I correct in saying that	MINNESOTA Number 10 is a
240 2	on this document,	MINNESOTA 10, as Mr.
241 24	If I can refer you back to	MINNESOTA 79. If you
245 2	"untreated lumber area" on	MINNESOTA 9? A.
253 14	you to take a look now at	MINNESOTA 80 if you
253 16	in conjunction with	MINNESOTA 80. (At
253 25	you to take a look at both	MINNESOTA 80 and United
254 20	, referring first to	MINNESOTA 80, when Mr.
258 6	Q. If you'll note,	MINNESOTA 80 is dated
258 7	U.S. 1. Mr. Edwards in	MINNESOTA 80 refers to a
259 20	I ask you now to look at	MINNESOTA 81, please.
259 23	Q. At the time when	MINNESOTA 81 was written
260 5	department, does	MINNESOTA Number 81
264 6	To refer you back again to	MINNESOTA 81, Mr. Horner
278 22	on the first page of	MINNESOTA 81 which goes
278 23	over to the second page of	MINNESOTA 81, Mr. Horner
285 4	you please take a look at	MINNESOTA Exhibit Number
291 15	the area marked "pond" on	MINNESOTA Exhibit Number
291 18	of the refinery. Q. On	MINNESOTA Exhibit Number
291 19	Exhibit Number 9? A. On	MINNESOTA Exhibit Number
309 18	you to take a look now at	MINNESOTA 11, please.
309 18	11, please. At the time	MINNESOTA 11 was written
310 7	Hennessy is not looking at	MINNESOTA 11, that it

PG LN	MINNESOTA*	
117 11	turn in the Exhibit book to	MINNESOTA Exhibit 18,
117 12	you recall ever having seen	MINNESOTA Exhibit Number
117 20	something like that. Q.	MINNESOTA Exhibit 18
118 15	on the first page of	MINNESOTA Exhibit 18 Mr.
120 17	top of the second page of	MINNESOTA Exhibit 18,
122 5	designation firehouse on	MINNESOTA Exhibit 97
122 18	the record you by examining	MINNESOTA 9 determined
123 9	In the middle of page 3,	MINNESOTA 10, Mr. Lauck
123 16	the bottom of the page 3 of	MINNESOTA 10 Mr. Lauck
125 1	Mr. Lauck describes in	MINNESOTA 18 as being
125 22	Mr. Lauck is describing in	MINNESOTA 187 A. No.
126 18	on the top of page 2 of	MINNESOTA 18 about the
127 3	If you'll turn to page 5 of	MINNESOTA Exhibit 18 Mr.
128 22	on the last page of	MINNESOTA 187 A. I
129 4	in the bottom of page 7 of	MINNESOTA 187 A. It
129 7	7 under Roman numeral IV on	MINNESOTA 18 Mr. Lauck
130 7	handwriting on page 7 of	MINNESOTA 18 as Mr.
131 20	it be before the date of	MINNESOTA Exhibit 18,
131 25	hand corner of page 7 of	MINNESOTA 18 Doctor
146 7	on that drawing. Q. On	MINNESOTA 97 A.
174 7	, could you look now at	MINNESOTA Exhibit Number
174 9	copied on the bottom of	MINNESOTA Exhibit Number
177 10	. Q. You're looking at	MINNESOTA Exhibit 97
105 15	Could I ask you to look at	MINNESOTA Exhibit 13.
105 21	you receive this document,	MINNESOTA 137 A. It
109 23	Mr. Finch be concerned in	MINNESOTA Exhibit Number
110 13	Plus the fact that up in	MINNESOTA the water in
112 17	. If you could look at	MINNESOTA 24 and I'd
113 8	ask you to take a look at	MINNESOTA 24 and ask you
114 6	I talked with. Q. The	MINNESOTA 24 refers to
114 23	Could you turn, please, to	MINNESOTA Exhibit Number
114 25	Hennessy, do you recognize	MINNESOTA Exhibit Number
115 4	A. Yes, um-hum. Q. Is	MINNESOTA 82 a reply to
115 7	In the second paragraph of	MINNESOTA 82 you state
118 15	at the time that you wrote	MINNESOTA Exhibit 82?
120 10	of the fifth paragraph in	MINNESOTA Exhibit Number
122 25	on the first page of	MINNESOTA Exhibit 82 you
127 4	testimony, it was that in	MINNESOTA Exhibit Number
128 13	What you are suggesting in	MINNESOTA Exhibit 82 is
133 17	I'd like you to turn now to	MINNESOTA Exhibit Number
133 19	copied on the bottom of	MINNESOTA 48. Did you
133 25	means. Mr. Hennessy, in	MINNESOTA 48 Mr. Boyle
135 15	Mr. Boyle was suggesting in	MINNESOTA 48 that an API
136 3	Mr. Hennessy, Mr. Boyle in	MINNESOTA Exhibit 48
136 6	the problem in response to	MINNESOTA 48? A. I
136 16	made two years earlier in	MINNESOTA 13, that a
136 17	-- I'm sorry. Not	MINNESOTA 13. Forgive
136 19	make two years earlier in	MINNESOTA 82 that a
136 21	sorry. I was referring to	MINNESOTA 82. A. Yes

PG LN	MINNESOTA*	
145 15	you to take a look now at	MINNESOTA Exhibit 30,
145 18	, did you receive a copy of	MINNESOTA 30 on or about
145 20	In the opening paragraph of	MINNESOTA 30 Mr. Finch
148 13	to the last paragraph of	MINNESOTA Exhibit 30
149 9	3, 1963 as of the date of	MINNESOTA 30, which is
149 25	Park. At the time that	MINNESOTA 30 was written
151 8	to the second page of	MINNESOTA 30, Mr. Finch
152 6	to the third page of	MINNESOTA 30. Am I
153 23	item 4 on the third page of	MINNESOTA 30, right at
156 20	time that Mr. Finch wrote	MINNESOTA Exhibit 30?
159 4	, would you take a look at	MINNESOTA Exhibit 22,
159 6	Hennessey, at the time of	MINNESOTA 22 what was
159 10	manager. Q. Does	MINNESOTA 22 appear to
160 1	. I did. Q. Does	MINNESOTA 22 correct
163 12	to the third paragraph of	MINNESOTA Exhibit 22.
168 15	? Q. The first line of	MINNESOTA 22. A. All
169 4	. Q. From your review of	MINNESOTA 22, doesn't it
173 25	In the final paragraph of	MINNESOTA 22 Doctor
174 22	like you to take a look at	MINNESOTA 50 if you
174 24	Mr. Hennessey, I notice that	MINNESOTA 50 was carbon
175 1	Did you receive a copy of	MINNESOTA 50? A. I
175 5	Q. Did you see a copy of	MINNESOTA 50 in your
177 3	to the third paragraph of	MINNESOTA 50 Mr. Lesher
177 13	you received a copy of	MINNESOTA 50. Mr.
179 21	basin upon the receipt of	MINNESOTA 50? A. If
182 13	you to take a look now at	MINNESOTA 23. A. All
182 16	recall receiving a copy of	MINNESOTA 23? A.
182 23	on it. Q. Was a copy of	MINNESOTA 23 in your
183 2	, in the opening line of	MINNESOTA 23 there is a
183 11	tank. Okay. Q. Does	MINNESOTA 23 refresh
183 24	on the first page of	MINNESOTA 23 there is a
184 14	look on the second page of	MINNESOTA 23 under the
185 10	up the second page of	MINNESOTA 23 there is a
186 25	-- there is a reference on	MINNESOTA Exhibit 23 to
187 12	. Q. Mr. Hennessey, in	MINNESOTA 23 I see that
188 5	is correct. Q. Does	MINNESOTA 23 refresh
191 20	look at the first page of	MINNESOTA 23 there is a
192 10	I'll ask you now to look at	MINNESOTA 51, please.
192 12	51, please. A.	MINNESOTA 51. Okay.
192 14	you are not copied on	MINNESOTA 51. Do you
192 15	any recollection of seeing	MINNESOTA 51 around the
192 17	it, no. Q. Did you see	MINNESOTA 51 as part of
192 21	. Q. At the time of	MINNESOTA 51 Mr. Lesher
192 24	Q. This document appears,	MINNESOTA 51, to be
193 2	you to turn to page 7 of	MINNESOTA 51 to the last
198 24	Mr. White recommended in	MINNESOTA 23 that are
501 22	, did you receive a copy of	MINNESOTA 19 on or about
501 25	with Reilly Tar the date of	MINNESOTA 19? A. I
502 8	to the final paragraph of	MINNESOTA 19. Here

PG	LN	MINNESOTA*	
602	22	the Republic deep well on	MINNESOTA Exhibit 9, are
609	1	you take a look, please, at	MINNESOTA 907 A.
609	4	Hennessy, did you receive	MINNESOTA 90 at or
609	14	on the first page of	MINNESOTA 90 where Mr.
610	9	railroad track would be on	MINNESOTA Exhibit 9?
611	9	attention back again to	MINNESOTA 51, I believe?
611	10	paragraph on page 2 of	MINNESOTA 51. Mr.
611	25	passed between the date of	MINNESOTA 51 and
611	25	date of Minnesota 51 and	MINNESOTA 90. I notice
612	2	of two years between	MINNESOTA 51 and
612	2	between Minnesota 51 and	MINNESOTA 90. A.
613	10	you to take a look first at	MINNESOTA 62. Did you
613	11	62. Did you receive	MINNESOTA 62 on or about
613	15	the 13th, 1970. O.	MINNESOTA 62 refers to a
613	25	that was referenced in	MINNESOTA 62. MS.
617	5	Q. Where it says sump on	MINNESOTA Exhibit 9?
618	23	this pencil and mark on	MINNESOTA Exhibit 9
619	16	you mark a brown line along	MINNESOTA Exhibit Number
619	24	generations looking at	MINNESOTA 9. A.
620	3	line that you marked on	MINNESOTA Exhibit Number
620	20	right at that point on	MINNESOTA Exhibit 9?
621	1	- A. Um-hum. O. -- on	MINNESOTA 9? Thank you
649	11	States Exhibit 28 to a	MINNESOTA water
655	5	brought by the State of	MINNESOTA in State court
655	6	Minnesota in State court in	MINNESOTA? A. Yes.
663	23	Chemical to the State of	MINNESOTA
664	2	direct your attention to	MINNESOTA Exhibit Number
666	13	Tar's answer to State of	MINNESOTA'S
677	15	refer you, Mr. Hennessy, to	MINNESOTA Exhibit 19.
699	8	right? And I refer you to	MINNESOTA 18 where I
600	25	indicated on the milar map,	MINNESOTA 9. That
604	18	Tar's answer to State of	MINNESOTA Interrogatory
619	10	. Q. If you'd refer to	MINNESOTA Exhibit Number
623	22	. This would be	MINNESOTA Exhibit Number
624	5	Park. (At this time	MINNESOTA Deposition

PG	LN	MITCHELL*	
77	16	Q. Do you recall if Mr.	MITCHELL worked on this?
222	20	sure it would have been Mr.	MITCHELL who would have
222	22	Q. Do you know where Mr.	MITCHELL is now? A.
223	11	other than yourself, Mr.	MITCHELL and Mr. Horner
248	12	3 is a document from Mr.	MITCHELL to Mr. A. E.
248	17	, were you familiar with Mr.	MITCHELL? A. Oh, yes
248	18	? A. Oh, yes, I knew Mr.	MITCHELL May 1, 1940.
249	1	is. Q. -- drafted by Mr.	MITCHELL -- A. Yes.
249	7	, would this document by Mr.	MITCHELL refer to the
249	14	the opening paragraph Mr.	MITCHELL gives figures
250	6	up the figures that Mr.	MITCHELL gives for the

PG LN MITCHELL*
 250 19 event, this indicates Mr.
 250 21 sentence. I believe Mr.
 263 21 , which is mentioned in Mr.
 263 24 same thing. Q. And Mr.

MITCHELL indicated a --
 MITCHELL says that the
 MITCHELL'S memo under
 MITCHELL here indicates

PG LN MOOTZ*
 329 1 Which is what? A. F. J.
 330 8 7 of Minnesota 18 as Mr.
 330 9 handwriting. A. Doctor
 330 10 Doctor Mootz. Q. Doctor
 330 12 your knowledge did Doctor
 330 21 indicate to you that Doctor
 331 25 7 of Minnesota 18 Doctor
 332 7 recommendation by Doctor
 332 15 it's "keep". A. Doctor
 334 14 for T. E. Reilly, F. J.
 351 10 stationery from F. J.
 351 14 that at all. Q. Was Mr.
 351 16 Reilly Tar? A. Doctor
 351 22 to be a document which Mr.
 352 9 to be a document which Mr.
 352 15 numeral 1. There Doctor
 352 19 Do you understand Mr.
 353 5 system. As I say, Doctor
 353 17 I don't understand Doctor
 354 22 numeral 3 in which Doctor
 356 20 , do you know what Doctor
 357 4 When you say Doctor
 357 20 from H. R. Horner to F. J.
 459 7 Minnesota 22 what was Mr.
 459 11 a document written by Mr.
 459 15 the middle sentence Doctor
 459 19 Do you understand Doctor
 460 4 Do you believe that Doctor
 461 18 you believe Doctor
 463 12 Exhibit 22. Doctor
 463 19 reason to believe that Mr.
 463 24 So to your knowledge Doctor
 464 16 you to believe that Doctor
 464 23 you to believe that Doctor
 467 2 of it. Q. Doctor
 468 4 Exhibit Number 22 Doctor
 468 8 Do you understand Doctor
 468 17 a phone call because Mr.
 469 5 , doesn't it appear that Mr.
 469 10 . Q. Thank you. Doctor
 474 1 of Minnesota 22 Doctor
 475 10 Mr. Leshner succeeded Doctor

MOOTZ. F.J.M. Q.
 MOOTZ' handwriting. A.
 MOOTZ. Q. Doctor
 MOOTZ? A. Um-hum.
 MOOTZ frequently visit
 MOOTZ had visited the
 MOOTZ whose handwriting
 MOOTZ was about? A.
 MOOTZ was not an
 MOOTZ and H. L. Holstrom
 MOOTZ to H. L. Holstrom
 MOOTZ at this time head
 MOOTZ was the
 MOOTZ would have --
 MOOTZ would have written
 MOOTZ states that, "You
 MOOTZ to be referring
 MOOTZ was no engineer.
 MOOTZ' terminology here.
 MOOTZ refers to an
 MOOTZ had his doctorate
 MOOTZ was no engineer
 MOOTZ dated July 31,
 MOOTZ' position? A.
 MOOTZ in the course of
 MOOTZ states that,
 MOOTZ here referring to
 MOOTZ is right in saying
 MOOTZ is incorrect when
 MOOTZ states that the
 MOOTZ is not accurate in
 MOOTZ' statement is
 MOOTZ' statement that
 MOOTZ' statement was
 MOOTZ goes on to say
 MOOTZ refers to a call
 MOOTZ as reporting
 MOOTZ' office was in the
 MOOTZ is speaking on the
 MOOTZ says that the
 MOOTZ refers to skimming
 MOOTZ as the production

PG LN MOOTZ*
 506 20 else would know. Doctor MOOTZ wouldn't know

PG LN P. C. REILLY*
 19 18 in the beginning, Mr. P.... in the beginning,
 21 8 finance committee when Mr. P.... essentially made
 21 14 same way except that Mr. P.... was on one end of
 148 12 , 1970, from yourself to Mr. P..... I want you to
 148 25 Well, it's addressed to Mr. P..... So he evidently
 211 5 when you referred to Mr. P.... suggestion of
 118 9 to a suggestion made by Mr. P..... Is this Mr. P.
 118 10 P. C. Reilly. Is this Mr. P....., senior, or Mr. P.
 118 10 C. Reilly, senior, or Mr. P....., junior? A.
 118 12 , junior? A. This is P...., junior, because
 118 12 Reilly, junior, because Mr. P....., senior, died in
 118 14 1952. Q. What was Mr. P....., junior's,
 119 2 . Q. Now, what was Mr. P.... suggestion then to
 546 25 from R. J. Hennessy to P..... A. Yes.

PG LN PETERS*
 341 17 Lauck's discussion with Mr. PETERS, and I can just
 342 4 believe you mentioned a Mr. PETERS? A. I believe
 342 5 ? A. I believe Mr. PETERS. Q. Was Mr.
 342 6 Mr. Peters. Q. Was Mr. PETERS at Saint Louis
 342 7 Louis Park? A. Mr. PETERS was at Saint
 342 8 Mr. Lauck talking with Mr. PETERS about what is to
 342 10 or was he talking with Mr. PETERS about an already
 342 14 well. Q. What was Mr. PETERS' position at
 342 25 of how old a man Mr. PETERS was in 1954? A.

PG LN PHENOL*
 161 17 did not give us a limit on PHENOL. They said that
 161 25 into the sewer were oil and PHENOLS? A. Correct.
 162 6 get the paramaters for the PHENOLS? A. Right.
 186 4 residents in the area had PHENOLIC contamination.
 186 10 . I was never involved in PHENOLIC contamination
 186 13 some concern raised about PHENOLIC contamination
 186 25 to any allegation of PHENOLIC contamination
 188 14 that; a concern about PHENOLIC contamination
 188 25 I read all this stuff about PHENOLIC contamination
 189 25 -- was a discussion about PHENOLIC contamination?
 191 13 the amount of oil we had or PHENOL. They knew what
 202 4 about biodegration of any PHENOLS from the product
 209 25 is based upon what Mr. (PHENOL I don't) might
 213 2 Park. We never separated PHENOL. We never
 213 7 Newark, New Jersey, we took PHENOL out. Yes, I
 213 9 of them. Q. You knew PHENOL was in there.

PG 1.N PHENOL*

222 14 at that time in designing a
 222 18 involved in designing the
 223 3 might have worked on that
 223 15 with anyone about how the
 223 19 I can't remember when that
 224 10 your understanding was the
 224 25 See, we never extracted
 225 4 without going through the
 225 5 that's correct, yes. The
 225 8 lab did any testing on
 225 10 Q. Did you ever work on
 225 13 company where we extracted
 225 18 Because that's where our
 225 25 Q. They were selling the
 237 25 building where the
 238 1 would be extracted in the
 238 10 oils which contain some
 238 11 phenol. And of course,
 238 13 that was also used for
 238 25 system? A. After the
 239 2 it definitely went to the
 249 11 take your dissolved oils or
 251 3 would be operating at the
 251 6 you testified that the
 251 8 in order to remove
 251 17 planning on extracting the
 251 20 a proposal for adding on a
 251 21 and does not refer to a
 252 9 was -- well, extraction of
 252 17 you don't know whether the
 272 21 replace the tar acids, the
 434 10 the problem was oil,
 505 4 reported the presence of
 505 8 experience would you expect
 505 12 . But I know there is
 505 13 is also - yes, there is
 505 13 there is phenol, natural
 505 15 that because there is
 505 16 bog there would also be
 505 22 for the presence of
 505 25 In 1933 at the time these
 506 3 contain or eliminate the
 510 16 which establish the
 510 18 June 1933 there were also
 510 21 mentioning the presence of
 511 7 we know that there was some
 511 16 That's right. Q. Would
 511 18 the concentration. See,
 511 19 get balls or slicks of

PHENOL extraction tank -
 PHENOL -- A. That I
 PHENOL extraction tank
 PHENOL extraction tank
 PHENOL extraction tank
 PHENOL extraction tank
 PHENOL anywhere else but
 PHENOL extraction tank?
 PHENOL extraction tank
 PHENOL extraction during
 PHENOL extraction
 PHENOL, the only places
 PHENOL formaldehyde
 PHENOL? A. I think
 PHENOL would be
 PHENOL extraction tank.
 PHENOL. And of course,
 PHENOL would be
 PHENOL extraction. Q.
 PHENOL was extracted.
 PHENOL extraction tank.
 PHENOL and other oils
 PHENOL extraction tank
 PHENOL extraction tank
 PHENOLS from byproducts
 PHENOL from those waters
 PHENOL tank and does not
 PHENOL extraction tank
 PHENOL is part of your
 PHENOL tank was used for
 PHENOLS and the other
 PHENOL and temperature
 PHENOL in water
 PHENOLS to be present in
 PHENOL in swamps and
 PHENOL, natural phenol.
 PHENOL. Q. But if I
 PHENOL in the peat bog
 PHENOL in water drawn at
 PHENOLS in the well as
 PHENOL results were
 PHENOLS? A. In 1933
 PHENOL concentrations as
 PHENOLS present in the
 PHENOL in the water that
 PHENOL contamination of
 PHENOLS also cause
 PHENOLS are very, very
 PHENOL. They would be

PG LN PHENOL*

512 6 Q. Would concentration of
 512 10 oil as distinguished from
 512 14 presence of oil rather than
 517 13 , steam mains. Q. Would
 517 16 a minute. I don't know.
 517 17 -- I don't know. Because
 518 9 I'm sorry. .02 gallons of
 518 11 would be .01 gallons of
 518 19 water, tar in the water,

PHENOL at that level
 PHENOLS, is that right,
 PHENOLS. A. Oh, yes,
 PHENOLS contribute to
 PHENOLS would be -- I
 PHENOLS would be a
 PHENOL. And then you've
 PHENOL if it was .01 ppm
 PHENOLS in the water.

PG LN REIERSCORD*

551 3 '76? A. To talk to Mr.
 551 5 were you talking with Mr.

REIERSCORD. Q. In
 REIERSCORD? MS.

PG LN REILLY TAR EXHIBIT*

526 6 line that you drew on

REILLY... Number 97 A.

PG LN REPUBLIC*

83 10 . It has in the corner a
 84 22 that the one identified as
 85 1 Q. See that in big words
 85 25 would be with regard to the
 86 22 , as I said before, is that
 205 5 well water you mentioned a
 248 14 303040 and appears to be on
 253 23 11, 1951 and appears on
 254 15 to be ordinary Reilly and
 299 21 February 2, 1955 and is on
 351 9 to be a memorandum on
 302 16 COYNE: Would that be the
 302 19 letters. Yes, that's the
 302 21 You're referring to the
 364 4 we've been referring to the
 364 16 Q. The other well, the
 364 22 with the use of the
 364 23 understanding is that the
 365 9 through the use of the
 368 17 for water production at the
 370 12 be the location of the
 370 14 That is the location of the
 372 15 the water supply for the
 373 14 water was taken from the
 373 22 we have water from the
 374 2 the water supply from the
 378 13 is that in water from the
 379 15 withdrawn instead from the

REPUBLIC Creosoting
 REPUBLIC deep well on
 "REPUBLIC deep well"?
 REPUBLIC deep well only?
 REPUBLIC deep well. Q.
 REPUBLIC deep well and
 REPUBLIC Creosoting
 REPUBLIC Creosoting
 REPUBLIC Creosoting
 REPUBLIC Creosoting
 REPUBLIC Creosoting
 REPUBLIC deep well? A.
 REPUBLIC deep well,
 REPUBLIC deep well on
 REPUBLIC deep well and
 REPUBLIC deep well, was
 REPUBLIC deep well. My
 REPUBLIC deep well was
 REPUBLIC deep well,
 REPUBLIC deep well. A.
 REPUBLIC deep well, is
 REPUBLIC deep well, yes.
 REPUBLIC deep well you
 REPUBLIC deep well
 REPUBLIC deep well going
 REPUBLIC deep well
 REPUBLIC deep well to
 REPUBLIC deep well.

PG.	LN	REPUBLIC*	
180	2	connection between the	REPUBLIC deep well and
182	5	at the time, failure in the	REPUBLIC deep well pump,
182	18	connection between the	REPUBLIC deep well and
188	22	Q. We've discussed the	REPUBLIC deep well and
189	2	or in conjunction with the	REPUBLIC deep well was
189	9	far as you know, then the	REPUBLIC deep well did
190	14	to provide water from the	REPUBLIC deep well?
191	18	going directly from the	A. REPUBLIC deep well to
192	4	direct connection from the	REPUBLIC deep well and
197	13	providing water from the	REPUBLIC deep well was
199	1	providing water from the	REPUBLIC deep well was
200	11	-- A. Oh, okay. Q. --	REPUBLIC deep well was
204	21	My questions pertain to the	REPUBLIC deep well which

PG	LN	RODER*	
166	12	to appendix F, this is Mr.	RODER'S memo which is
166	21	did you confer with Mr.	RODER concerning its
168	21	that paragraph that Mr.	RODER advises that at
174	7	here. I believe it's in	RODER'S letter here.
206	5	sure I don't know. Mr.	RODER I guess somehow or
208	7	for facts like Mr.	RODER did here. This
209	1	Q. What's Mr.	RODER'S background? A.
209	2	background? A. Mr.	RODER is a graduate
209	6	Which was? A. Oh, Mr.	RODER is young. I
209	11	Perhaps going back to Mr.	RODER for a minute, you
210	3	A. I don't know that Mr.	RODER has ever worked on
210	6	brain. Q. Is it Mr.	RODER? A. Mr. Roder
210	7	it Mr. Roder? A. Mr.	RODER has worked on coal
210	15	Park. You'll note in the	RODER attachment
217	25	of the second page of Mr.	RODER'S memo appendix F
226	15	tools? A. I think Mr.	RODER'S letters
227	3	the game. I believe Mr.	RODER dug the document
227	19	materials referenced in the	RODER memorandum and he
228	5	of material gathered by Mr.	RODER in the course of
228	18	the document referenced by	RODER. We'll also
228	22	pulled together by	RODER from which he
229	1	I don't know what	RODER looked at
229	13	of documents which Mr.	RODER had assembled
229	18	a bundle of documents that	RODER looked at. I've
229	20	, this is hearsay, that	RODER went through the
230	2	you to ascertain as far as	RODER knows if all of

PG	LN	RYAN*	
149	3	I don't know. Maybe Mr.	RYAN was president. I
154	23	the bottom that Mr. T. J.	RYAN is carbon copied?
155	5	of the company, Mr. T. J.	RYAN was chief
155	6	accountant. And if Mr.	RYAN was president of

PG LN RYAN*
 155 12 McAdams was -- well, if Mr. RYAN was president, Mr.
 .55 15 correct. Q. If Mr. RYAN was not president.
 155 20 believe Mr. Reilly and Mr. RYAN was. I don't know
 144 19 , 1970 memorandum from T. J. RYAN to R. J. Hennessy.

PG LN SAINT LOUIS PARK
 1 10 authority Civil No. of SAINT... Oak Park
 1 13 Defendants. and City of SAINT...
 2 12 City of SAINT... EDWARD J.
 4 20 No. 117 660 SAINT... Exhibit No. 49
 4 21 Exhibit No. 49 184 SAINT... Exhibit No. 50
 23 8 did you work on at the SAINT... plant? A.
 23 9 project I worked on at the SAINT... plant was the
 23 15 did you work on at the SAINT... plant? A.
 23 21 you can remember doing in SAINT.... A. Well,
 24 1 too many projects at SAINT.... Those were
 24 7 . Before I ever went to SAINT.... Probably
 28 20 that you put in lines at SAINT.... A. I
 34 6 about or concerned in at SAINT...? A. The
 37 17 became involved with the SAINT... property still
 41 11 that you worked on in the SAINT... sites? A.
 42 18 projects that you did at SAINT...? A. The
 44 3 you got involved with at SAINT... over the years
 47 17 the settling basin at the SAINT... site? A.
 47 21 with anybody while at SAINT... about the
 48 7 separator, had he been to SAINT... and seen the
 48 10 nature of the drainage at SAINT...? A. I can't
 49 3 Was this a graph based on SAINT... drainage or is
 49 11 the sewer, yes. Q. At SAINT...? A. Yes.
 52 3 of enamel in the tanks at SAINT...? A. No.
 53 11 coming through the sewer at SAINT.... What kind of
 77 23 concrete. Q. The one in SAINT... was made out of
 78 9 one that you designed for SAINT...? A. Oh, yes
 78 15 very well. The one for SAINT... I couldn't tell
 80 14 that you designed for SAINT...? A. Well,
 88 23 that was installed in SAINT...? A. It
 90 19 said that you designed the SAINT... basin for less
 93 1 one that was installed in SAINT... in any other
 93 23 engineering work on the SAINT... separator you
 95 22 that was installed at SAINT...? A. Well,
 96 21 to treat crossties at the SAINT... plant? A.
 97 25 you speaking of the one in SAINT...? Q. The one
 98 2 Park? Q. The one in SAINT.... I'm sorry.
 98 8 heavy oil coming into the SAINT... separator had
 98 21 never saw them clean one in SAINT..., but that's the
 99 3 as the one you designed at SAINT...? A. I
 99 25 at it, when you came to to SAINT... for the first
 102 9 , I'd like to show you now SAINT... Exhibit Number

PG LN	SAINT LOUIS PARK	
03 3	rate of drainage from the	SAINT... facility around
04 20	oil-water settling basin at	SAINT... in operation?
05 16	? A. I never saw that at	SAINT.... At
05 20	or not. I never saw it at	SAINT.... Q. Did
05 22	when you first saw it at	SAINT...? A. When I
06 6	? A. Well, I was at	SAINT... probably ten
07 13	was put in there, put in	SAINT...? A. Some of
10 16	your various trips to	SAINT... and your
20 8	rain that whole area of	SAINT... drained into
30 9	mostly used on ties at the	SAINT... plant was first
42 21	it out we will but it was	SAINT... Exhibit 43 and
43 8	your visits to the plant at	SAINT..., the occasions
46 17	work order relative to the	SAINT... facility and
46 19	a telephone call from the	SAINT... facility, would
48 5	here. (At this time	SAINT... Deposition
48 11	for identification as	SAINT... Exhibit 49.
48 19	to an appraisal of the	SAINT... plant? A.
49 16	buyer could be the city of	SAINT... or any other
49 22	is a sale of property to	SAINT... or a developer
54 2	fair market value for the	SAINT... plant property
54 15	Mr. Reilly had decided to	SAINT... years ago. It
56 1	welcome. (At this time	SAINT... Deposition
56 6	at what we've marked as	SAINT... Exhibit 50.
57 15	We're talking about the	SAINT... facility? The
57 16	memo is in regard to the	SAINT... facility? A.
57 20	that the settling basin at	SAINT... was designed in
57 21	? A. No. The basin at	SAINT... was designed in
58 9	and wanted one like it at	SAINT... and he wrote a
59 2	of the drainage water at	SAINT...? A. No, I
59 16	the settling basin at	SAINT...? Q. Yes.
59 23	try to limit myself to the	SAINT... facility. A.
59 25	Park facility. A. Oh,	SAINT.... Well, no.
64 19	involvement relative to the	SAINT... plant, if any.
65 15	involvement relative to the	SAINT... facility? A.
66 2	of the facility at	SAINT...? A. You're
66 3	A. You're talking about	SAINT...? Q. Only.
66 5	Only. A. No. Not for	SAINT.... Q. The
66 8	from the Reilly plant in	SAINT...? A. Yes, it
67 14	October of 1970 the city of	SAINT... and state of
69 19	the 80 acres of the Reilly	SAINT... facilities do
75 6	of the settling basin at	SAINT..., was there?
75 25	of the straw filter at the	SAINT... facility. I
77 10	times that you were at the	SAINT... facilities am I
78 18	being discharged onto the	SAINT... facilities
81 23	1972 the plant property in	SAINT... was sold to the
81 24	was sold to the city of	SAINT.... Just for a
82 1	April of '72. Other than	SAINT... Exhibit 49
82 3	with the city of	SAINT... for the
82 17	limited to that appraisal,	SAINT... Exhibit 49?

PG LN	SAINT LOUIS PARK	
.82 21	between the city of	SAINT... and Reilly Tar.
.83 10	previously been marked as	SAINT... Exhibit 4.
.83 15	transcript of a session at	SAINT... before the City
.86 14	water supply of the city of	SAINT.... A. I saw
.87 8	of the Reilly plant in	SAINT... it had
.87 17	of the Reilly facilities in	SAINT... it did not
.88 13	water supply of the city of	SAINT..., was the
.89 16	of wells in the city of	SAINT...? A. I had
.90 6	. Q. Let's put this	SAINT... Exhibit 4 away.
.91 8	did the same thing	SAINT... did. They
.92 6	For the record that's	SAINT... Exhibit 507
.92 17	to water pollution at	SAINT... in the second
.95 10	to the quality of the	SAINT... drinking water
.95 12	of the Reilly plant at	SAINT...? A. No. I
.95 14	of any threats to the	SAINT... drinking water
.95 17	drinking water supply at	SAINT... as a result of
.95 24	Reilly tar operations in	SAINT...? A. No.
.96 3	processes of the plant in	SAINT... would present
.96 9	looking at the residents of	SAINT...? A. Well, I
.96 11	know too many residents at	SAINT..., but the ones I
.96 22	the first two pages of that	SAINT... Exhibit 43 that
.100 18	. Q. Let's look at a	SAINT... Exhibit for a
.102 5	? A. You mean for the	SAINT... plant? Q.
.102 20	or end products of the	SAINT... plant? A.
.103 14	a little story. No, at	SAINT... I did not.
.104 5	work would you assume that	SAINT... would be of
.104 14	that you'd assume that the	SAINT... facility was
.104 24	would be that the	SAINT... facility would
.110 5	it. Q. I show you	SAINT... Exhibit 45.
.110 8	to close the facilities at	SAINT.... A. Yes.
.110 14	the Exhibit as to why the	SAINT... facility was
.112 1	outside and including the	SAINT... plant? A.
.113 1	any of this material at	SAINT.... We never
.115 25	drinking water supply at	SAINT...? A. No.
.116 18	the wood treating plant at	SAINT.... I'm a little
.117 21	think that they steamed at	SAINT.... But I could
.118 16	. This is I think	SAINT... Exhibit 43
.118 21	The entire composite.	SAINT... Exhibit 43 is.
.118 24	that appear later on in	SAINT... Exhibit Exhibit
.119 1	to the third page of	SAINT... Exhibit 43,
.121 17	about the effluent from the	SAINT... plant during
.121 24	in the effluent from the	SAINT... plant during
.124 4	. When I first went to the	SAINT... plant in 1951
.125 15	Chicago, but we also did in	SAINT.... Okay.
.126 8	one of the attachments in	SAINT... Exhibit 43.
.134 8	the oil-water separator at	SAINT...? A. I would
.136 6	the drainage ditch at the	SAINT... plant. Were
.137 16	on a monthly basis at the	SAINT... plant? A.
.137 22	into the drainage ditch at	SAINT...? A. This

PG LN SAINT LOUIS PARK

142 9 byproducts department at

146 16 -- A. Yes. Q. -- at

147 3 basin installed at the

149 7 disposal waste water at the

149 15 for waste water from the

150 8 operations at the

152 7 have been installed at the

153 1 or not it was used at

155 2 1951 of an interest by the

155 11 that you designed than the

155 14 yesterday showed that the

155 18 He was plant manager of the

156 10 Larkin about anything at

157 19 system that leaves the

158 15 ask you to construct for

160 12 Larkin was plant manager at

161 3 A. You're talking about

162 7 , yes, um-hum. Q. At the

163 25 proceeds through in the

165 8 regularly going through the

169 22 water coming out of the

170 1 put the straw filters in at

171 15 eliminating the problem at

174 23 say the sulfate water at

175 9 it and tell him to do it at

176 11 Reilly plants including

176 24 the straw filter for the

178 1 questioning we talked about

178 3 of flow sheets attached to

178 5 oil and water separator at

178 14 that the design of the

180 7 the oil-water separator in

183 9 was designed at the

183 10 Louis Park plant? A.

183 23 straw filter was changed at

183 25 Saint Louis Park? A. At

185 21 the laboratory. Q. At

185 22 Saint Louis Park? A. At

186 1 the byproducts operation at

186 5 to the drainage ditch at

186 19 the drainage ditch at the

187 8 that was coming from the

188 16 problems at boilers at the

189 3 you had with the boilers at

190 13 the two boilers at the

195 20 that time did you go to the

199 12 that had connection with

100 4 a work order to provide the

103 9 was the plant manager at

SAINT...? A. That's

SAINT...? A. Um-hum.

SAINT... plant might not

SAINT... plant at that

SAINT... refinery and

SAINT... plant, that

SAINT... plant was that

SAINT.... If you

SAINT... plant in

SAINT... basin? A.

SAINT... basin was

SAINT... plant. Q.

SAINT.... Q. Later

SAINT... plant." Would

SAINT... an oil-water

SAINT...? A. That's

SAINT..., yes. Q.

SAINT... plant. In

SAINT... waste system at

SAINT... oil-water

SAINT... plant or did it

SAINT.... So I would

SAINT... in exactly the

SAINT... and the

SAINT.... He assumes

SAINT..., is that a

SAINT... plant? A.

SAINT... Exhibit 43 and

SAINT... 43, sheets

SAINT.... A. You're

SAINT... separator was

SAINT...? A. I don't

SAINT... plant? A.

SAINT... had a

SAINT...? A. At

SAINT... no personal

SAINT...? A. At

SAINT.... I don't know

SAINT..., quote, "Has a

SAINT... that we

SAINT... plant? A.

SAINT... plant was

SAINT... plant? A.

SAINT...? A. When

SAINT... plant in terms

SAINT... property

SAINT.... But I didn't

SAINT... boilers with a

SAINT.... Q. Mr.

PG LN	SAINT LOUIS PARK	
103 12	identifies the open pond at	SAINT... as having
104 17	used for boiler water at	SAINT...? A. I know
107 24	I first knew anything about	SAINT... which was, I
108 17	was city water put in at	SAINT..., I would have
109 15	was put into the boiler at	SAINT...? A. Um-hum.
111 7	regard to the boilers at	SAINT...? A. Yes.
113 9	believes that the pond at	SAINT... was
117 22	that Mr. Lauck was at the	SAINT... plant doing
125 13	- A. Um-hum. Q. -- at	SAINT.... A. What's
130 13	Mootz frequently visit the	SAINT... plant? A.
131 9	date that the city of	SAINT... built the
134 7	after his visit to	SAINT...? A. Yes,
134 11	reports on equipment at the	SAINT... plant? A.
135 3	discussing this morning at	SAINT...? A. Yes, he
135 12	plugs in this water main at	SAINT... plant? A. I
140 17	his investigation of the	SAINT... plant about
141 9	was ever instituted at	SAINT...? A. Yes, it
142 2	same maintenance system at	SAINT.... Q. But
142 6	. Q. Was Mr. Peters at	SAINT...? A. Mr.
142 7	? A. Mr. Peters was at	SAINT..., yes. Q.
142 14	was Mr. Peters' position at	SAINT... at that time?
151 19	at the time manager of the	SAINT... plant? A.
152 21	which you designed for	SAINT...? A. No.
153 1	system that you designed in	SAINT..., the oil-water
153 2	which you designed at	SAINT...? A. I don't
153 21	that you designed at	SAINT... -- or rather
153 24	that you designed at	SAINT..., would that
155 1	that was designed at	SAINT.... Would this
156 11	emulsions were present at	SAINT... at any time
159 24	pitch storage tanks at the	SAINT... refinery? A.
161 9	second design installed at	SAINT...? A. Shortly
163 14	refer to steam lines at the	SAINT... plant. Were
165 1	for wood treating at the	SAINT... plant were
166 13	in the cooling pond at the	SAINT... plant. Do you
166 16	in the cooling pond at the	SAINT... plant? A. I
168 13	pitch blending operation at	SAINT..., is that
168 19	pans that you designed at	SAINT...? A. Correct
169 1	of those samples from the	SAINT... plant? A.
174 15	headers at both ends of the	SAINT... refinery and
176 11	even the condenser pans, at	SAINT... were covered.
179 25	the waste water system at	SAINT... came up? A.
180 6	waste water problems at	SAINT...? A. I
180 11	the settling basin at	SAINT...? A. He's
180 16	the settling basin in	SAINT... on the first
184 23	the effluent came out of at	SAINT... or came into
189 1	in the refinery area at	SAINT...? A. In the
193 21	for the ground tanks at	SAINT.... A. Correct
194 10	these tanks ever reused at	SAINT...? A. No, I'm
195 4	at -- A. Yes. Q. --	SAINT...? A. Um-hum.

PG	LN	SAINT LOUIS PARK		
198	1	of any stills exploding at	SAINT...?	A. No.
198	2	Park? A. No. Not at	SAINT....	Q. Do you
198	4	kind in any other part of	SAINT...?	A. They
103	17	any other explosions at	SAINT...?	A. I
103	25	besides the pitch tank at	SAINT...?	A. No, I
114	8	7 to the south of Reilly's	SAINT... property.	Is
116	24	anything about rainfall in	SAINT....	but it would
123	10	That should have been like	SAINT....	Maywood's
124	2	handled more water than the	SAINT... basin.	But
124	17	flow of water than the	SAINT... basin?	A.
124	14	much larger plant than the	SAINT... plant as far as	
124	20	one that was already at	SAINT...?	A. Well,
125	16	would have been built for	SAINT... and it would	
126	6	the ground. Q. The	SAINT... basin was one	
126	13	that you were proposing at	SAINT....	A. I don't
127	7	like Maywood's be built at	SAINT....	And by high
128	2	high it would have to be at	SAINT... I don't know.	
128	15	was already in existence at	SAINT...?	A. That is
128	20	basin. Was water at the	SAINT... plant not	
129	13	the bottom of the basin at	SAINT...?	A. Well,
129	24	6 inches off the bottom at	SAINT...?	A. It
130	17	bottom than it was at the	SAINT... settling basin?	
130	25	than it was at the	SAINT... separator?	A.
131	3	might be installed at	SAINT... have a hopper	
131	8	had been installed at	SAINT....	A. That is
131	12	82 ever installed at	SAINT...?	A. It was
131	18	basin not installed at	SAINT...?	A. I don't
132	4	a new settling basin at	SAINT... at this time?	
133	1	oil-water separator at	SAINT...?	A. That's
135	17	plant be installed at	SAINT...?	A. Yes.
135	21	the contaminant problem at	SAINT...?	A. I think
136	10	be installed in the	SAINT... plant ever	
136	20	separator be installed at	SAINT...?	I'm sorry.
137	12	was the plant engineer at	SAINT....	Q. In the
139	9	at the Reilly facility at	SAINT... which pumped	
141	1	pump that was in use at the	SAINT... facility at	
141	11	as being in use at the	SAINT... property have	
142	8	the pump that was in use at	SAINT...?	A. No. I
144	1	only one explosion at	SAINT....	A. Correct
144	6	which I thought happened at	SAINT... is this	
144	9	-- A. Yes. Q. -- at	SAINT...?	A. I
145	22	in trenches in the	SAINT... refinery. Are	
149	24	had not been available to	SAINT....	At the time
150	4	was not available to the	SAINT... plant during	
150	11	there a plant engineer at	SAINT... during that	
150	14	was a plant engineer at	SAINT... and when he	
150	16	did Mr. Paul White start at	SAINT...?	A. I don't
150	23	become familiar with the	SAINT... refinery	
151	12	that you worked on at	SAINT... in eliminating	

PG LN	SAINT LOUIS PARK	
151 17	I did not personally go to	SAINT... and work on it.
151 24	that you had done at	SAINT... was to work on
156 19	was a public issue in	SAINT... at the time
156 25	ground contamination at the	SAINT... plant in 1967?
157 10	ground contamination in	SAINT... about the --
157 12	Park about the -- A. In	SAINT... in '67? Q.
159 17	enters the settling pond at	SAINT... and contributes
159 24	the boiler blow down at	SAINT... went into the
161 4	didn't do it. I wasn't at	SAINT... at the time.
168 6	was plant manager of the	SAINT... plant? A.
172 11	in the '60's the city of	SAINT... had a flood in
173 4	floods that effected the	SAINT... plant happened
175 13	refers to a visit to the	SAINT... plant during
175 19	water pollution problems at	SAINT.... All I know
176 2	of the settling basin at	SAINT...? A. I would
176 3	say the settling basin at	SAINT... which was built
183 4	of water pollution at	SAINT.... What work
183 5	water pollution at	SAINT... at this time?
185 13	that you designed at	SAINT...? A. Yes.
192 2	plant effluent at	SAINT...? A. No. I
193 5	that the settling basin at	SAINT... was in poor
194 6	basin that you designed at	SAINT... break easily or
196 14	water pollution problem at	SAINT.... In your
196 17	of water pollution at	SAINT...? A. This
196 23	water pollution problem at	SAINT...? A. They
197 14	separator ever installed at	SAINT...? A. No.
197 17	Park? A. No. Q. The	SAINT... plant did not
202 11	to the deep well in the	SAINT... property? A.
208 5	There again -- Q. -- at	SAINT...? A. I think
209 15	the waste ditch at the	SAINT... plant and
209 21	was considered the road at	SAINT...? A. I don't
213 17	of soil conditions at the	SAINT... for possible
213 18	connection to the city of	SAINT.... Do you
214 19	considering installing at	SAINT...? A. Correct
221 8	the proposed hookup to the	SAINT... water system?
222 11	-- Q. -- of soil by	SAINT...? A. Um-hum.
226 14	never installed at	SAINT... plant? A.
227 25	by Paul White for the	SAINT... plant. Q.
228 8	read who's. Maybe it says	SAINT.... I don't know
228 15	with the existing tanks at	SAINT...? A. I don't
231 19	used in the boiler at the	SAINT... plant. Do you
231 22	water in its boiler at the	SAINT... in September
232 11	boiler in September 1969 at	SAINT...? A. My
234 2	-- I couldn't swear that	SAINT... tanks -- that
234 11	are you talking about	SAINT... specifically?
234 21	to Reilly plants not	SAINT... specifically?
237 3	by the API in 1965, the	SAINT... plant was
237 17	by API in 1965, the	SAINT... tar storage
238 9	refineries. Q. Was the	SAINT... facility in

PG LN	SAINT LOUIS PARK	
138 13	other standards was the	SAINT... not in
138 21	scrubber installed in the	SAINT... plant? A.
141 5	there to a scrubber at	SAINT... plant. Was
143 13	for a pollution survey of	SAINT... from Pollution
144 3	survey of air pollution at	SAINT... or water
144 4	Park or water pollution at	SAINT... at this time?
144 23	25 about you visiting the	SAINT... plant in 1970.
144 24	recall ever visiting the	SAINT... plant in 1970?
146 2	an Edens separator at the	SAINT... plant? A.
147 19	under the heading	SAINT... . Do those
147 21	system in existance at	SAINT... at the time
149 14	waters below the Reilly Tar	SAINT... plant has
150 6	creek is. Everybody at	SAINT... that I talked
150 16	plant had been raised and	SAINT... had built some
150 20	Q. When was the visit to	SAINT... following the
151 2	. Q. Why did you go to	SAINT... in 1975 or '76?
152 18	being discharged by the	SAINT... plant? A.
156 10	Q. What was done at the	SAINT... refinery in the
157 8	that were conducted at	SAINT... which you
165 7	of course, for this site in	SAINT... ground water
165 21	about facilities away from	SAINT...? Q. Right
165 22	Q. Right. Other than	SAINT.... A. Oh,
166 5	what is the reason why the	SAINT... facilities was
166 17	wells in the city of	SAINT.... A. All
184 21	But all the time I was at	SAINT... we never got
193 24	in the vacuum line at	SAINT.... Now, Doctor
195 24	given the piping at	SAINT... to have some
196 25	whether elevations at	SAINT... are 400 or 500.
203 23	in loading tank trucks at	SAINT.... I had
210 14	at the Reilly Tar in	SAINT.... You'll note
213 6	the Reilly Tar facility at	SAINT... experience red
213 22	of any boiler explosions at	SAINT.... I won't say
219 1	Was that a problem at the	SAINT... facility? A.
219 7	in which the boilers at	SAINT... puked. Now, I
224 4	It was obviously written at	SAINT.... (At this
226 17	stack of stuff on wells in	SAINT... including that
231 7	? A. Since this was at	SAINT... and I knew very
231 8	I knew very few people at	SAINT..., I told you all
231 10	air lift manufacturer in	SAINT... that might have

PG LN	STATE*	
1 6	, Plaintiff, and	STATE of Minnesota, by
1 23	for the County of Hennepin	STATE of Minnesota,
2 9	of Plaintiff-Intervenor,	STATE of Minnesota.
2 20	Director, Mississippi	STATE University, Forest
2 20	Box 552, Mississippi	STATE, Mississippi
82 19	Deposition Exhibit	STATE of Minnesota 20.
143 4	early stage of his emeritus	STATE, yes. Q. So

PG LN STATE*

43 14 registered engineer in any

43 16 A. Yes, I am. Q. What

44 1 believe at that time the

45 20 accurate summary or general

45 20 , an accurate general

56 21 notebook here is all of the

56 25 have been marked as

57 5 about 80. A. 80. Q.

57 6 for a moment. A. Here's

61 14 would accept. Q. City,

64 23 agencies, whether city,

66 18 the documents included in

67 15 of Saint Louis Park and

72 9 Mr. Hennessy, let's look at

72 11 at State Exhibit 20. A.

73 13 basin referenced in

79 7 . Q. With reference to

84 22 as Republic deep well on

86 3 the 1930's there would be

90 9 . Q. Let's look at

91 2 . We reported to the

92 7 50? MR. HINDERAKER:

96 17 right. Q. Let's turn to

96 24 time and we'll look at this

108 11 No. Q. Let's look at

108 12 at State Exhibit 13. A.

111 3 . Q. Would you look at

112 7 Q. Why don't you pull out

118 20 are you looking at? The

122 4 separator about the

122 10 was being done because the

130 19 mean this area below where

130 24 where? A. Where it says

131 1 ? A. Yes. Between

161 13 what he meant by that

162 8 plant. In paragraph 3 he

164 7 to Minnesota 81, Mr. Horner

164 12 So you'd agree with that

166 22 ? Is it then a correct

168 16 3. Go ahead. Is that

168 17 MS. COMSTOCK: Can you

176 12 Park, is that a correct

180 3 goes to Eagle Creek. The

190 11 I believe he works for the

198 11 to determine whether your

199 6 COMSTOCK: All right.

127 5 outside of the building and

127 7 deteriorated. Does this

127 22 doubt the accuracy of that

STATE? A. Yes, I am.

STATES? A. Indiana.

STATE had engineers

STATEMENT, an accurate

STATEMENT, to say that

STATE of Minnesota

STATE Exhibits. So if

STATE 80 just for a

STATE 80. Q. Have

STATE or any

STATE or otherwise, did

STATE Exhibit 21E. And

STATE of Minnesota

STATE Exhibit 20. A.

STATE Exhibit 20. Q.

STATE Exhibit 20, was

STATE Exhibit 9 can you

STATE Exhibit 9? A.

STATEMENTS made that

STATE Exhibit 48 for a

STATE of Ohio for a few

STATE 50. I'm sorry.

STATE Exhibit 58. A.

STATE Exhibit 58 for a

STATE Exhibit 13. A.

STATE Exhibit 13. All

STATE Exhibit 82, please

STATE Exhibit 83 here.

STATE or the Minnesota?

STATE'S interest in

STATE was objecting to

STATE Highway 7 is

STATE Highway. Q.

STATE Highway and Lake

STATEMENT? A. What I

STATES that, "Shortly

STATES that, "The

STATEMENT? A. Yes.

STATEMENT that where you

STATEMENT to your

STATE again which

STATEMENT? A. Oh,

STATE says this is okay

STATE of Indiana. Q.

STATEMENT that city

STATE your question.

STATES that these

STATEMENT agree with

STATEMENT? A. I have

PG	LN	STATE*	
127	24	doubt the accuracy of the	STATEMENT because Mr.
130	18	indicates that -- well,	STATES that, "After hard
134	22	"2. Water" Mr. Lauck	STATES that, "Plant
136	1	any reason to believe that	STATEMENT is inaccurate?
149	13	valve wide. This is all	STATE-OF-THE-ART because
152	15	1. There Doctor Mootz	STATES that, "You should
152	16	make a disposition --	STATES to Mr. Holstrom
160	5	wanted to get an accurate	STATEMENT. A. I
163	3	you now to take a look at	STATE Exhibit 15.
163	8	, I note on the bottom of	STATE Exhibit Number 15
163	10	. Do you recall receiving	STATE Exhibit 15? A.
163	13	The opening two lines of	STATE Exhibit 15 refer
163	25	on your reference now to	STATE Exhibit Number 15.
164	3	7, 1958, the date of	STATE Exhibit 9? A.
164	18	order. Q. Mr. Reilly in	STATE Exhibit 9 says
165	11	the basis of referring to	STATE Exhibit 15 that
168	25	portion of the document	STATE Mr. Gruenhagen's
171	4	immediately from the solid	STATE to the vapor state
171	5	solid state to the vapor	STATE. Naphthalene
173	15	or whether he went to the	STATE library or where
178	12	. Q. Mr. Finch in the	STATE Exhibit Number 16
178	22	you now to take a look at	STATE Exhibit Number 3,
179	9	Finch, do you recall seeing	STATE Exhibit Number 3.
181	5	"Waste Water" Mr. Lesher	STATES that, "The
181	18	would you agree with that	STATEMENT? A. Where
181	19	? A. Where is this	STATEMENT now? "The
182	8	. Would that be a correct	STATEMENT? I'm taking
188	9	full paragraph on page 5,	STATE Exhibit Number 3,
190	7	a couple of paragraphs on	STATE Exhibit Number 3,
191	2	referring to page 2 of	STATE Exhibit Number 3,
192	11	Q. Mr. Lesher goes on to	STATE that, "These
196	10	9 through 12. And he	STATES that, "We are
114	9	Park property. Is that	STATEMENT correct to
115	8	of Minnesota 82 you	STATE that, "Mr.
115	10	is a swamp." You further	STATE that, "The Reilly
115	13	know any reason why that	STATEMENT of yours is
115	15	. Q. You further	STATE going down another
116	7	doubt the accuracy of those	STATEMENTS? A. No.
116	12	from the plant." Is this	STATEMENT based on your
116	15	. Q. This is an accurate	STATEMENT? A. I
116	17	yes, this is an accurate	STATEMENT. Q. What
118	3	street through. Q. You	STATE in State Exhibit
118	3	. Q. You state in	STATE Exhibit Number 82
119	18	in the fifth paragraph of	STATE Exhibit Number 82?
128	18	Q. You go on further to	STATE that water from
129	3	settling basin," used in	STATE Exhibit Number 82
129	9	the proposed basin in	STATE Exhibit 82 to say,
131	11	paragraph of page 1 of	STATE Exhibit 82 ever
132	9	of the first page of	STATE Exhibit 82 after

PG LN STATE*

135 5 similar to Cleveland's in
 147 15 doubt the accuracy of that
 152 19 paragraphs where Mr. Finch
 159 15 sentence Doctor Mootz
 163 12 Exhibit 22. Doctor Mootz
 163 24 knowledge Doctor Mootz'
 164 16 believe that Doctor Mootz'
 164 23 believe that Doctor Mootz'
 165 1 inaccurate. Q. If the
 167 6 doubt the accuracy of that
 167 9 doubt the accuracy of the
 168 4 see it, yes. Q. In
 180 17 believe that Mr. Leshar's
 180 19 terrible was an inaccurate
 185 25 I've seen huge ones used on
 186 12 I believe the witness has
 193 4 on the page. Mr. Leshar
 195 23 your attention to page 3 of
 198 13 of May 20, 1968, which is
 198 18 proposed by Mr. White in
 301 19 me ask you to look now at
 303 6 would suggest that that
 303 16 and I've commented on
 311 17 Q. Um-hum. Mr. Leshar
 330 23 at the time, is Mr. White's
 343 20 United States 24 Mr. Leshar
 355 5 -- the suit brought by the
 355 6 the State of Minnesota in
 355 12 Interrogatory 20 where the
 360 11 response in subpart D. You
 360 13 What did you mean by that
 362 17 HIRD: Q. However, your
 363 23 Tar and Chemical to the
 366 13 in Reilly Tar's answer to
 304 18 in Reilly Tar's answer to
 309 18 from one of the Wisconsin
 314 19 was no tar, is that a fair
 314 20 ? A. It's a fair
 327 8 the office and I think the
 328 9 has been produced to the
 333 10 for the County of Hennepin,

STATE Exhibit 827 A.
 STATEMENT? A. No,
 STATES that, "In winter
 STATES that, "Boiler
 STATES that the pond has
 STATEMENT is accurate?
 STATEMENT that the pond
 STATEMENT was inaccurate
 STATEMENT is accurate
 STATEMENT? A. Well,
 STATEMENT. In the
 STATE Exhibit Number 22
 STATEMENT that the
 STATEMENT? A. No.
 STATE highways. Our
 STATED that he does not
 STATES that he and Mr.
 STATE Exhibit 51. Mr.
 STATE Exhibit 237 A.
 STATE Exhibit 237 A.
 STATE Exhibit 19, please
 STATEMENT is inaccurate?
 STATED that we used an
 STATES that, "The visual
 STATEMENT accurate that
 STATES he is sending a
 STATE of Minnesota in
 STATE court in Minnesota
 STATE asked you what
 STATE that at normal
 STATEMENT? A. Well,
 STATEMENT that the
 STATE of Minnesota
 STATE of Minnesota's
 STATE of Minnesota
 STATE universities. Q.
 STATEMENT? A. It's a
 STATEMENT, yes. Q.
 STATE went through them
 STATE. As I say, I
 STATE of Minnesota; I

PG LN STRAW*

50 5 I designed I designed the
 113 8 point later in time a
 113 15 What was the purpose of the
 113 16 ? A. The purpose of the
 113 24 escapes you can built a

STRAW filters that were
 STRAW filter was used in
 STRAW filter? A. The
 STRAW filter was to
 STRAW filter and the

PG LN	STRAW*	
113 24	a straw filter and the	STRAW will absorb that
114 8	what that was called. The	STRAW filter was
114 13	important to install the	STRAW filter in 1951,
114 16	, in fact, we had two	STRAW filters later on.
114 25	clean that up we put in the	STRAW filter. Q.
115 2	on the installation of the	STRAW filter? A. Yes
115 5	project of creating this	STRAW filter? A. At
115 10	on the installation of the	STRAW filter? A. I
115 13	for the first time, the	STRAW filter was already
116 8	. Q. What about the	STRAW filter mechanism?
116 9	filter mechanism? A.	STRAW filter mechanism
116 13	by two baskets each with	STRAW in it. And they
116 15	it out and clean out the	STRAW. So what you
116 16	what you would do when the	STRAW got black you'd
116 16	lift out one, put clean	STRAW in it and then put
116 18	one and take the dirty	STRAW out and put clean
116 18	straw out and put clean	STRAW in. Q. Did you
116 20	when you designed the	STRAW filter? A.
116 25	? A. When to change the	STRAW and the straw
116 25	to change the straw and the	STRAW filter also
117 5	him to change the	STRAW? A. It
117 7	can tell by looking at the	STRAW. If you didn't
117 8	of that iridescent oil the	STRAW might last, I
117 13	someone did not change the	STRAW as frequently as
117 14	? A. Then as soon as the	STRAW absorbed all of
117 18	. Q. Now, was this	STRAW lowered into a
117 19	Was the procedure that the	STRAW filter would be
118 1	so that when you put the	STRAW in it would be
118 3	level. So you'd have	STRAW all the way down
118 5	when you were changing the	STRAW you didn't short
118 6	words, you wait till the	STRAW got brown, it was
118 7	basket out and change the	STRAW and put it back in
118 9	basket out, change the	STRAW and put it back in
118 18	it over and change the	STRAW. Very easy
118 23	, sure could, because this	STRAW did a real good
118 24	job of absorbing. Even the	STRAW above the water
165 21	in the design of the	STRAW filters that were
175 25	first installation of the	STRAW filter at the
176 18	, you know. Because the	STRAW filter works the
176 23	of the installation of the	STRAW filter? A. I
176 25	the installation of the	STRAW filter. Q.
193 23	. Insulation of second	STRAW filter.
265 3	that's when we put the	STRAW filter in to stop
269 3	creation of the idea of the	STRAW filter? A. Yes
269 6	talks about installing a	STRAW filter at Maywood
269 12	mess up the settling, and a	STRAW filter took out
269 20	water was taken up by the	STRAW filter. Q. To
270 1	here -- we did put the	STRAW filters in at
270 10	talking about installing a	STRAW filter, but he's

PG LN STRAW*

170 14 yesterday was that the STRAW filter was
170 18 basin effluent and the STRAW filter. I'm sure
170 20 plant we have installed a STRAW filter which does
171 2 to first install a STRAW filter at
171 3 at Minneapolis and if this STRAW filter is kept
171 8 has to be handled by the STRAW filter. The
171 10 a major problem, and the STRAW might be have to
171 19 concerns to be that the STRAW might become dirty
172 4 water would gum up the STRAW filter in a hurry.
173 6 the settling basin and the STRAW filter, and the
173 6 the straw filter, and the STRAW filter will catch
173 11 this won't work because the STRAW will absorb it so
173 18 that would come into the STRAW filter without
173 22 oil would be found on the STRAW. The only way
174 1 basin before it hits the STRAW. Am I wrong in
175 14 the settling basin and the STRAW filter -- A. I
176 7 has to be handled by the STRAW filter, the
176 7 filter, the cleaning of STRAW filter becomes a
176 8 becomes a major problem and STRAW might have to be
176 10 in designing and installing STRAW filters at various
176 13 Yes. If you overload the STRAW filter, you very
176 17 determine the size of the STRAW filter, the
176 23 when you designed the STRAW filter for the
177 13 . . Q. In the various STRAW filters that you
177 17 a lengthy sample and the STRAW filters were made
179 4 how to best design a STRAW filter? A. Yes
180 19 data when you designed the STRAW filter? A. Oh,
180 21 data when I designed the STRAW filter and I had
181 24 the installation of the STRAW filter we would
181 25 head permitted at the STRAW filter." What is
182 3 A. When you first put the STRAW filter in there
182 4 straw filter in there and STRAW is cleaned and
182 6 I'd say one inch across the STRAW filter. Now, as
182 11 flow stays the same and the STRAW absorbs oil, why,
182 12 rise above upstream of the STRAW filter. Q. In
182 19 the structure holding the STRAW filter. In other
182 20 . In other words, the STRAW filter as I
182 22 So if you don't change the STRAW soon enough, why,
182 23 your water upstream of the STRAW filter's going to
182 25 any idea how frequently the STRAW was changed at the
183 1 straw was changed at the STRAW filter in Maywood?
183 5 so often. You change the STRAW filter so often.
183 23 about how frequently the STRAW filter was changed
196 1 . If he means by -- well, STRAW filters were
112 4 think of is maybe a second STRAW filter in his
112 9 about putting in another STRAW filter. Q. Do
112 11 oil-water separator and the STRAW filter when he
183 8 on the next page, install a STRAW filter, clean the
187 14 is the installation of a STRAW filter at the

PG	LN	STRAW*	
187	16	previous testimony that a	STRAW filter had been
187	20	the time 1968 there was no	STRAW filter in
187	21	incorrect. There were two	STRAW filters installed.
188	2	basin into the first	STRAW filter and then
188	3	and then into the second	STRAW filter? A.
188	6	that the second	STRAW filter was
188	12	. Q. Why was the first	STRAW filter inadequate?
188	19	. Q. Was the second	STRAW filter of a
188	20	design than the first	STRAW filter? A. No,
188	25	he eliminated by the first	STRAW filter? A. No.
189	2	same oil. If the first	STRAW filter ceased
189	2	functioning because the	STRAW very quickly got
195	24	of installing a simple	STRAW baffle. Do you
195	25	to be referring there to a	STRAW filter? A. Yes
196	5	, but he's talking about a	STRAW filter. There
196	7	I know for a fact that a	STRAW filter was
196	11	the ditch and installing a	STRAW baffle or filter,
196	20	that type of equipment and	STRAW filters and so
197	25	. Flows from there to a	STRAW filter to plant
198	5	discharges into another	STRAW filter. We
198	14	It does not run through a	STRAW filter or settling

PG	LN	T. E. REILLY*	
155	3	? A. Either he or Mr.	T.... was president of
155	4	of the company. If Mr.	T.... was president of
155	7	company at that time, Mr.	T.... would have been on
198	25	appears to be a memo from	T.... to H. L. Holstrom
199	21	know. Q. What was Mr.	T.... position at the
199	23	again I'm not sure, but Mr.	T.... might have been
202	19	to be a memorandum from	T.... to H. L. Holstrom
234	14	he's got copies marked for	T...., F. J. Mootz and
237	5	from P. E. White to	T.... dated September 7,
240	7	sending it directly to Mr.	T.... He's bypassing
243	3	? Would it have been Mr.	T....? A. He could
243	6	. I assume Mr.	T.... would have had
298	5	Corporation stationery from	T.... to H. L. Finch
331	12	Corporation stationery from	T.... to Herb Finch
345	17	from R. J. Hennessy to	T.... A. Yes. I'm

PG	LN	UNITED STATES*	
1	1		UNITED... DISTRICT COURT
1	4		UNITED... of America,
2	5	for and on behalf of the	UNITED... Enviromental
2	6	Region V, Plaintiff,	UNITED... of America.
4	2	EXHIBITS	UNITED... Exhibit No. 2
4	3	Exhibit No. 2	UNITED... Exhibit No. 3
4	3	No. 3	UNITED... Exhibit No. 4
		PAGE	
		95	
		283	

PG	LN	UNITED STATES*			
4	4	No. 4	289	UNITED...	Exhibit No. 5
4	4	No. 5	334	UNITED...	Exhibit No. 6
4	5	No. 6	338	UNITED...	Exhibit No. 7
4	5	No. 7	347	UNITED...	Exhibit No. 8
4	6	No. 8	369	UNITED...	Exhibit No. 9
4	6	No. 9	376	UNITED...	Exhibit No. 10
4	7	No. 10	387	UNITED...	Exhibit No. 11
4	7	No. 11	393	UNITED...	Exhibit No. 12
4	8	No. 12	402	UNITED...	Exhibit No. 13
4	8	No. 13	430	UNITED...	Exhibit No. 14
4	9	No. 14	435	UNITED...	Exhibit No. 15
4	9	No. 15	448	UNITED...	Exhibit No. 16
4	10	No. 16	472	UNITED...	Exhibit No. 17
4	10	No. 17	479	UNITED...	Exhibit No. 18
4	11	No. 18	533	UNITED...	Exhibit No. 19
4	11	No. 19	549	UNITED...	Exhibit No. 20
4	12	No. 20	563	UNITED...	Exhibit No. 21
4	12	No. 21	567	UNITED...	Exhibit No. 22
4	13	No. 22	568	UNITED...	Exhibit No. 23
4	13	No. 23	576	UNITED...	Exhibit No. 24
4	14	No. 24	578	UNITED...	Exhibit No. 25
4	14	No. 25	580	UNITED...	Exhibit No. 26
4	15	No. 26	581	UNITED...	Exhibit No. 27
4	15	No. 27	582	UNITED...	Exhibit No. 28
4	16	No. 28	584	UNITED...	Exhibit No. 29
59	5	have this drawing marked as		UNITED...	Exhibit 2,
59	6	, please? (At this time		UNITED...	Deposition
59	11	referring to the		UNITED...	Exhibit 2 of
147	23	correct. (At this time		UNITED...	Deposition
148	11	Let the record reflect that		UNITED...	3 is a
153	17	BO. (At this time		UNITED...	Deposition
153	21	Let the record reflect that		UNITED...	4 is a
154	1	at both Minnesota BO and		UNITED...	4 and ask
155	20	Louis Park plant. Q. In		UNITED...	4 Mr. Larkin
156	12	two lines of paragraph 3 in		UNITED...	4 Mr. Larkin
198	18	boiler. (At this time		UNITED...	Deposition
198	23	now what has been marked as		UNITED...	5 which is a
102	12	boiler. (At this time		UNITED...	Deposition
102	17	you what has been marked		UNITED...	Exhibit 6
108	7	on this memorandum,		UNITED...	Number 6, that
110	2	record.) (At this time		UNITED...	Deposition
110	9	what will now be designated		UNITED...	7, which is a
133	8	you. (At this time		UNITED...	Deposition
133	17	, have you ever seen		UNITED...	Exhibit 8
134	10	to have received a copy of		UNITED...	8 since it
140	2	here. (At this time		UNITED...	Deposition
140	7	which has been marked		UNITED...	Exhibit 9
140	15	in 1954, yes. Q. This		UNITED...	9 appears to
146	22	A good several years after		UNITED...	9 was written.

PG	LN	UNITED STATES*	
150	7	But referring you back to	UNITED... 9 you don't
151	2	you. (At this time	UNITED... Deposition
151	7	you now what's been marked	UNITED... 10 which is a
151	12	, do you recall seeing	UNITED... 10 previously?
151	21	? A. Yes. Q. Does	UNITED... 10 appear to
152	7	a complete question. Does	UNITED... 10 appear
152	13	bottom of the first page of	UNITED... 10 to the
154	20	turn to the second page of	UNITED... 10 and look
157	13	you. (At this time	UNITED... Deposition
157	17	which has been marked	UNITED... 11 is a one
163	16	Lauck was referring to in	UNITED... Exhibit Number
163	19	the trenches. Q. In	UNITED... Exhibit 9 I
166	4	, yes. (At this time	UNITED... Deposition
166	25	with what was marked as	UNITED... Exhibit 12,
167	2	an opportunity to review	UNITED... Exhibit 12?
167	7	. A. All right. Q.	UNITED... Exhibit 12 is
167	13	Hennessy, did you receive	UNITED... Exhibit 12?
168	11	. Q. Mr. Hennessy,	UNITED... 12 appears to
168	22	to the second page of	UNITED... Exhibit 12
194	13	junked. (At this time	UNITED... Deposition
194	17	HIRD: Q. For the record	UNITED... Exhibit 13 is
194	21	, have you ever seen	UNITED... 13 before?
194	25	I don't know. Q. Does	UNITED... 13 appear to
195	7	first to the second page of	UNITED... 13. Mr.
196	8	Q. On the first page of	UNITED... 13 Mr. Finch
197	7	any information other than	UNITED... 13? You
199	23	there. (At this time	UNITED... Deposition
100	4	HIRD: Q. For the record	UNITED... 14 is a two
100	8	Mr. Hennessy, have you seen	UNITED... 14 before?
100	15	Yes, it is. Q. Does	UNITED... 14 describe
112	19	which I guess will become	UNITED... 15. (At
112	20	15. (At this time	UNITED... Deposition
112	24	Q. For the record,	UNITED... 15 is a one
113	3	Hennessy, did you receive	UNITED... 15? A. I
113	5	to me. Q. I notice in	UNITED... 15 Mr. Boyle
113	20	. I see. Okay. Q. In	UNITED... 15 Mr. Boyle
115	5	Mr. Boyle's letter which is	UNITED... 15? A. Yes
136	23	. (At this time	UNITED... Deposition
137	2	HIRD: Q. For the record	UNITED... 16 is a one
137	7	copied at the bottom of	UNITED... 16. Did you
137	8	Did you receive a copy of	UNITED... 16? A. I
137	10	Mr. White, the author of	UNITED... 16? A. Mr.
137	14	. Q. In the course of	UNITED... 16 Mr. White
143	11	right. (At this time	UNITED... Deposition
143	15	HIRD: Q. For the record	UNITED... Exhibit Number
143	21	copied on the bottom of	UNITED... 17. Did you
143	22	Did you receive a copy of	UNITED... 17? A.
144	3	A. Correct. Q. Does	UNITED... 17 refresh
144	18	Based on your review of	UNITED... 17 and your

PG LN	UNITED STATES*	
197 23	that. (At this time	UNITED... Deposition
198 7	of the carbon copyees on	UNITED... 18. Did you
198 8	Did you receive a copy of	UNITED... 18? A.
198 10	did, yes. Q. Would	UNITED... 18 be a work
198 17	between the expenditures in	UNITED... 18 and the
199 2	to me. Q. Looking at	UNITED... 18, I see that
200 22	Q. Do you see anywhere in	UNITED... 18 any
213 1	ditch. (At this time	UNITED... Deposition
213 22	I do. Q. I show you now	UNITED... 19, which is a
213 24	302538. I ask you whether	UNITED... 19 is a copy
214 7	So you received a copy of	UNITED... 18 (sic)? A.
214 13	was this report undertaken,	UNITED... 19? A. The
218 1	referring to page 302531 of	UNITED... Exhibit 18
221 4	attention to the page in	UNITED... Exhibit 19
221 17	turn then to page 302353 of	UNITED... Exhibit 19.
222 7	turn now to page 302534 of	UNITED... Exhibit 19.
227 7	held.) (At this time	UNITED... Deposition
227 14	you what has been marked	UNITED... Exhibit 20,
231 4	there. (At this time	UNITED... Deposition
231 9	you what has been marked	UNITED... Exhibit 21,
232 15	then. (At this time	UNITED... Deposition
232 19	HIRD: Q. Mr. Hennessy,	UNITED... Exhibit 22 for
232 24	you ever receive a copy of	UNITED... 22? A. I
233 8	the insurance. Q. Was	UNITED... 22 written by
233 15	A. Could be. Q. In	UNITED... 22 Mr. Boyle
240 16	A. Yes. (At this time	UNITED... Deposition
240 24	you are carbon copied on	UNITED... 23. Did you
240 25	Did you receive a copy of	UNITED... 23 on or about
241 4	3 on the first page of	UNITED... 23, there is a
242 19	stills. (At this time	UNITED... Deposition
242 24	which has been marked	UNITED... Exhibit 24
243 8	are copied on the bottom of	UNITED... 24. Did you
243 9	Did you receive a copy of	UNITED... 24? A. I'm
243 19	the close of the document	UNITED... 24 Mr. Leshar
244 12	Okay. (At this time	UNITED... Deposition
244 16	HIRD: Q. For the record	UNITED... Exhibit 25 is
244 20	recall receiving a copy of	UNITED... 25? A. Yes
244 22	There is a reference in	UNITED... 25 about you
245 10	, yes. (At this time	UNITED... Deposition
245 14	Q. For the record	UNITED... Exhibit 26 is
245 22	Mr. Hennessy, did you write	UNITED... Exhibit 26?
245 25	. Q. Mr. Hennessy, does	UNITED... 26 set forth
246 17	. (At this time	UNITED... Deposition
246 21	HIRD: Q. For the record	UNITED... Exhibit 27 is
247 2	Mr. Hennessy, did you write	UNITED... 27? A. Yes
247 4	. Q. Why did you write	UNITED... 27? A. The
247 18	your attention to page 4 of	UNITED... Exhibit 27 and
247 22	Louis Park at the time when	UNITED... 27 was written
248 23	. (At this time	UNITED... Deposition

PG	LN	UNITED STATES*	
149	2	HIRD: Q. For the record	UNITED... 28 is one page
149	7	Mr. Hennessy, did you write	UNITED... Exhibit 28?
149	10	There is a reference in	UNITED... Exhibit 28 to
151	19	further. (At this time	UNITED... Deposition
151	23	BY MR. HIRD: Q.	UNITED... Exhibit Number
152	2	Mr. Hennessy, did you write	UNITED... Exhibit 29?
152	5	I wrote it. Q. What was	UNITED... 69 (sic)
152	8	you very much. What was	UNITED... 29 intended to
152	16	did. Q. Do the X's in	UNITED... Exhibit Number
153	9	you intended to indicate by	UNITED... 29 that
154	8	make sense? Q. Does	UNITED... Exhibit 29
154	19	to admit it but -- Q. --	UNITED... 29? A. But

PG	LN	U.S.*	
6	11	college that you found of	USE in your earliest
10	19	, you know. We had to buy	USED materials in those
12	20	procedures, and I may have	USED a term inaccurately.
17	2	But they would just call	US and tell us what the
17	2	would just call us and tell	US what the guy had done
18	3	word for it? A. No.	USUALLY we just
20	1	words, would a request	USUALLY for some kind of
20	2	to be done at the plant	USUALLY begin by being
20	13	then either would contact	US, usually the
20	13	either would contact us,	USUALLY the production
21	6	of what documents were	USED. In the earlier
21	22	Q. An oral authorization	USUALLY wouldn't be
24	8	a lot of tanks that were	USED for those processes
24	10	of the plant for other	USES. Q. How were
25	6	Do you think you could show	US on Minnesota 9 where
26	6	are small and we could only	USE large ones here.
26	21	order to put them back into	USE or were they simply
27	9	is a way we made them. We	USED a 6 inch pipe and
29	15	the tanks that would be	USED after the refining
32	11	What would be the typical	USEFUL life of a storage
32	12	of a storage tank to be	USED to receive -- A.
33	15	quite a ways but it helps	US. See, we're not
35	18	the phrase "lesher still"	USED. A. That's a
35	19	That's a good term. Let's	USE it. He developed
35	25	? A. No. We only	USED four at that time.
36	2	there but it was never	USED. I mean, it
36	3	I mean, it hasn't been	USED since I don't know
37	11	was its situation? Was it	USED for a special
37	12	? A. Still 17 was	USED years ago for some
37	15	still. What it was	USED for I couldn't say.
37	24	four stills or were they	USING all of 9 through
38	24	Q. How would they be	USED? And forgive me if
40	22	know if those terms are	USED. Maybe they are.
43	8	remember whether that was	USED for tar-oil mixing

PG LN

U.S.*

43 11 some of the oils that were
45 7 the type of materials
45 15 or whether I was told to
45 15 . But that's what was
48 16 basin, perhaps he said
50 24 you a question about the
51 3 to me that it might be
51 4 any sense of the specific
51 11 Q. Is there a projected
52 7 tend to have a shorter
52 9 the underground tanks were
52 24 pitting. Q. Would it be
53 23 to? A. Yes. That
61 14 correct the water level on
62 1 this may be relied on and
62 18 here. Q. What would be
63 11 there was a pump that was
64 22 -- back in those days they
65 1 back in the early '40's, we
65 11 this could have been
65 12 were the tar-oil mixtures
65 13 mixtures used for? A.
66 2 to see where it would be
66 11 . Now, after it was
66 14 this heavy oil always be
66 16 that would make it
66 19 in with it, it would be
66 24 ? Would it then be
67 2 most of the distillate we
67 8 for the oil by
67 8 oil by using it, they would
67 17 to it. Q. Is it
67 18 all? A. Oh, yes, it's
68 9 . For instance, oil that's
71 19 and they worked, so we
72 13 I can't remember whether we
72 14 electric pump or whether we
72 14 used steam pumps. If we
73 2 the floor. We may have
74 16 maybe a week or so. We
83 20 says, "We're going to
93 8 ? A. The data I
96 21 blend was ever
97 2 , huh-uh. Q. If it was
100 17 your attention again to
101 21 the levels that you drew in
103 14 These must have been what I
103 16 I was speaking of that I
111 5 ever ask anybody about the

USED in the treating.
USED to construct the
USE it I don't remember.
USED. But anyway, I
USE tongue and groove
USEFUL life of the tanks
USEFUL if you had any
USEFUL life and the
USEFUL life when one
USEFUL life than
USED in our company for
USUAL to dig them up
USED to be a sewer line.
U.S. Exhibit 2 please do
USED later on and it
USED to skim it off?
USED to get rid of the
USED a lot of steam
USED an awful lot of
USED in some of the
USED for? A. Used
USED for treating, you
USED again? A.
USED I don't know why
USEFUL or would it be
USEFUL in the process?
USEFUL, yes, if it came
USEFUL? A. Yes. It
USED for treating
USING it, they would use
USE it, yes. Q.
USEFUL at all? A.
USEFUL. Sure. It
USED to lubricate air
USED it. That's all I
USED an electric pump or
USED steam pumps. If
USED steam pumps we
USED that. I can't
USED that. That would
USE an Edens separator."
USED in 19 -- whatever
USED to treat crossties
USED, wouldn't the
U.S. Exhibit 2, could
U.S. 2 of materials or
USED. Okay. This is
USED for designing the
USE of the heavy oil

PG LN	U.S.*	
.11 10	asked anybody what it was	USED in or anything like
.13 8	in time a straw filter was	USED in conjunction with
.110 14	for that hoist that you	USE. Jib crane. Just
.21 19	part of the land from	US and were making
.123 13	settling basin has been	USED. I take it you're
.23 21	I think if Herb Finch	USED the term settling
.124 5	is that pond is a pond we	USE to cool our
.27 15	The great majority of water	USED in the refinery was
.128 5	? Any cooling water that's	USED in the -- we have a
.129 5	that, the one boiler was	USED as a standby for
.129 9	the fire tube boiler was	USED only as a standby
.130 8	the process that was mostly	USED on ties at the
.130 24	the customer was going to	USE the lumber for. He
.31 2	of treating that was	USED which involved
.132 1	certain length of time they	USED for seasoning.
.32 5	. They didn't belong to	US. So what we did is
.33 13	be? Q. Was steam ever	USED to clean the
.33 14	the cylinders when not in	USE? A. I assume it
.145 24	, if management would give	US a work order, that
.146 1	, of course, that's who gave	US the authorization to
.146 5	. They would call on	US for our experience
.150 25	? A. We obviously	USED Boeckh's Manual of
.151 2	buildings were appraised by	USING Boeckh's Index and
.151 15	and Steven's index is	USED for equipment.
.151 17	, old work orders would tell	US how much we paid for
.151 20	. We know how much	USE we had of it. We'd
.155 9	remember who. We don't	USE titles. You notice
.156 13	B, C and D they must have	USED my figures. These
.156 25	Exhibits. So if you can	USE this notebook that
.161 13	you mean did the city tell	US what they would
.161 15	people that finally gave	US permission to go into
.161 16	to go into the sewer gave	US a limit on oil, but
.161 17	oil, but they did not give	US a limit on phenol.
.162 15	manufacturer. He assured	US it could do the job,
.169 4	the plant that required the	USE of pilings? A.
.169 25	. Most of the plant was	USED for seasoning ties
.172 25	the city would have allowed	US. Q. In other
.178 3	. A. Well, the plant let	US know about it through
.178 5	took pictures and sent	US the pictures. O.
.180 10	? A. He suggested to	US that we figure out a
.183 22	the meeting. I guess I'm	USING it just as a way
.184 18	right at the refinery was	USED, I believe, to
.184 19	the pond which was	USED to cool the
.191 8	Louis Park did. They gave	US permission, but they
.191 9	permission, but they told	US what we had to do to
.205 23	the water with air. They	USED air to lift the
.206 21	. I know that they had to	USE that compressor for
.207 3	its equipment in order to	USE the water in the
.209 14	basin was darker than	USUAL. There was more

PG LN	U.S.*	
109 15	oil being collected than	USUAL. So he said loss
115 19	store in a package. We	USED to package
117 6	words, what preservative is	USED, how steam is used?
117 6	is used, how steam is	USED? A. That's
117 12	sure that most of the oils	USED were creosote oil
117 16	with respect to the	USE of steam in the
117 18	knowledge of how steam is	USED generally or used
117 18	steam is used generally or	USED in other plants?
120 8	measured it I'm sure either	USED a weir or he could
120 9	used a weir or he could	USE the sump pump if
127 10	capacity of the separator	USING the flow rate, you
127 10	using the flow rate, you	USED only the dry
138 12	quite certain that was also	USED for phenol
138 20	referring to here when he	USES the figure 4,800
139 14	out the application for the	U.S. Army waste
141 9	I think they really asked	US. Q. What
143 7	that is taken out and	USED for weed killing
143 17	thing I know of that they	USE. I don't know if
143 17	use. I don't know if they	USE anything else or not
143 19	know that they did not	USE other products for
143 25	the byproduct department be	USED around the plant
144 4	Q. But products would be	USED in other Reilly
144 6	Certain products would be	USED, yes. Q.
144 9	in Indianapolis which is	USED for weed killing.
150 2	except he does mention	USING neutral oil from
150 10	say just the sum, to avoid	US adding, the sum of
152 17	whether the phenol tank was	USED for the refinery
152 19	at all? A. It was	USED to extract tar
152 23	before that it was only	USED in connection with
152 25	operation where it was	USED at the Reilly
153 1	sure whether or not it was	USED at Saint Louis Park
157 17	to have a plan made for our	USE so that we can avoid
158 7	80 is dated two days after	U.S. 1. Mr. Edwards in
162 24	water, where was that	USED? Q. I don't
162 25	don't think Mr. Horner has	USED it in this document
163 1	, but I think it was	USED in previous
163 11	you back for a moment to	U.S.-- MS. COMSTOCK:
163 18	like to refer you back to	U.S. 3 which I believe
167 18	did have the situation, to	USE your hypothetical,
175 24	pipe that could have been	USED for this. That
177 22	7 day week be equally as	USEFUL in designing an
178 4	were the flow data that you	USED in designing the
179 17	? Would that be as	USEFUL as well? A.
179 18	? A. Yes. It's very	USEFUL. In
180 5	. Of course, they charge	US like hell for what's
187 12	, as you described it to	US yesterday and the day
189 8	the firing system to	USE coal? A.
190 15	terms of which boiler was	USED for what purpose?
190 22	per hour. This boiler was	USED as a standby.

PG LN	U.S.*	
191 2	the steam from the boilers	USED for? A. For
191 5	, for whatever steam is	USED for, you know.
191 6	, you know. There are many	USES for steam. Q.
191 7	was the source of the water	USED in the boilers?
193 11	reciprocating pump that you	USED before? A. Well,
195 1	, but were they both	USED with both boilers,
195 10	in 1940 I believe they	USED internal treatment.
100 7	as to eliminate the	USE of an open pond
100 9	Mr. Reilly to mean by his	USE of the phrase, "
100 15	it was rather difficult to	USE it for boiler feed
100 17	You don't understand the	USE of the term
104 16	being in the pond that was	USED for boiler water at
105 21	. Q. So this tank was	USED for the condenser
105 22	the condenser coils but not	USED for the boiler?
106 11	were able to clean them and	USE them, but it got to
107 5	the condenser coils. We	USED that pump to pump
107 22	we? But this pond was	USED from the time the
107 25	'40's I guess, the pond was	USED to feed the boiler
108 3	1955 the pond stopped being	USED for boiler feed
108 13	that. I have just shown you,	U.S. 5 and U.S. 6. A.
108 13	just shown you, U.S. 5 and	U.S. 6. A. No.
108 20	put in. City water was	USED at the hoiler. Q.
108 22	on Exhibits 5 and 6,	U.S. 5 and 6 for the
109 9	Q. But you are relying on	U.S. 5 and U.S. 6 for
109 9	are relying on U.S. 5 and	U.S. 6 for determining
110 14	recollection of ever seeing	U.S. 7 before? A.
111 2	Lauck is carbon copied on	U.S. 7. Would you
111 3	on the basis of reading	U.S. 7 and the copy to
111 4	copy to Mr. Lauck that that	U.S. 7 was prepared in
111 10	in the second paragraph of	U.S. 7 says that one of
114 13	, I believe for years they	USED a steam pump to
116 9	Mr. Hennessy, reading down	U.S. 7 to the next.
118 24	steam reciprocating pump is	USED to supply a four
119 8	. Lauck says that the pond	USUALLY has an oil slick
123 4	your bearing with	US on this. You have
123 19	he described it bypass the	USE of the pond and just
124 10	Horner earlier suggested in	U.S. 7, that tar and oil
124 20	back to is referring you to	U.S. 7 again. If you
124 20	7 again. If you recall in	U.S. 7 when we were
124 21	7 when we were discussing	U.S. 7 I believe you
125 5	Your question is if we quit	USING the pump at the
125 9	understand it, we looked at	U.S. Number 7 and Mr.
125 16	Reilly boiler was the water	USED from the settling
125 17	settling pond water	USED from the pond? A.
133 13	you what has been marked	U.S. Exhibit 8, which is
136 5	date stamp number 304413 on	U.S. Exhibit 8. A.
139 19	could just confirm that for	US. THE WITNESS:
139 25	THE WITNESS: Got to start	USING the same
140 11	Do you recall ever seeing	U.S. 9 before, Mr.

PG	LN	U.S.*	
140	21	to the second page of	U.S. 9, item 13, where
144	8	Q. Which is the date of	U.S. 9? A. The
145	2	fumes can be eliminated by	USE of steam jets and
146	3	done at the time we ceased	USING the pond. That
146	8	A. Um-hum. When we quit	USING that that's when
146	9	that that's when we quit	USING is when we started
146	9	using is when we started	USING city water in the
147	15	boilers. And pitch was	USED as a fuel. It's a
147	21	pipe enamel, all kinds of	USES for the residue.
147	25	. So what we did is we	USED that line for the
148	2	boiler room. Q. You	USED the former pitch
148	5	it was changed over to	USING steam to your
148	12	it was or we couldn't have	USED it for a steam line
150	11	time after this memorandum	U.S. 9 was written? A.
150	18	steam line in trenches on	U.S. 9, I'd asked you
152	24	10 tank. Q. When he	USES the phrase, "Your
153	16	came from, what it was	USED for and I don't
153	18	Q. "I do not see a future	USE for it, should
155	12	That's the emulsion he was	USING for a weed killer.
161	11	after this one. We didn't	USE the springs very
162	17	we found out was we were	USING calcium silicate
164	5	the steam line to where we	USED the pitch line from
165	1	the treatment cylinders	USED for wood treating
165	19	the year, but we started	USING the overhead pitch
171	21	hydrocarbons? A. It	USED to be that your
173	4	the petroleum industry put	US out of the
173	5	business by clobbering	US and making it, but
174	20	. Q. Would you tell	US what the problem was
176	19	treating plant to be either	USED as is or put in
184	11	of the flow rate that you	USED when you were
190	1	its efficacy, I believe you	USED the figure two feet
108	21	'20's. What would be the	USEFUL life of these
109	8	you said a shorter life,	USEFUL life, would you
109	14	that. Q. Would be the	USEFUL life? A.
112	12	the straw filter when he	USES the phrase
113	14	if you look closely at	U.S. 15 Mr. Boyle says
118	5	range did you mean when you	USED the words
129	3	the settling basin,"	USED in State Exhibit
130	5	as the sludge pump that was	USED at Cleveland? A.
134	24	were satisfied and they let	US into the sewer. Q.
139	18	pump that may already be in	USE? A. The way I
140	16	the one that was then in	USE was not effective in
141	1	of the pump that was in	USE at the Saint Louis
141	11	one described as being in	USE at the Saint Louis
142	7	see the pump that was in	USE at Saint Louis Park?
142	13	You can get -- contractors	USE them for digging
142	18	of the pump that was in	USE -- A. No, I
152	23	Finch referring to when he	USED the phrase coal tar
154	16	in the 1920's they	USED screwed pipe, and

PG LN	U.S.*	
155 2	piping system has been in	USE since 1917-1927."
155 5	piping system has been	USED since 1917, '27 -
156 23	on to say, "This might save	US severe control by the
157 19	issue and this might save	US from severe control
163 15	do you understand from his	USE of the word "pond"
184 2	put in as opposed to the	USE of the phrase, for
184 7	tell whether he's going to	USE the old tank or
185 4	need a small tank you can	USE it. He says he
185 7	an old tank that had been	USED which is a
185 24	I've seen them very small	USED around apartment
185 25	and I've seen huge ones	USED on state highways.
186 2	the trash in our whole area	USES a dumpster. Q.
186 4	the one that your trash man	USES? A. How big is
190 23	away and got rid of it for	US. What details I
191 9	. He made this out. He	USED some of my figures
195 23	Exhibit 51. Mr. Leshner	USES the phrase of
196 2	and a filter would be	USED interchangeably to
196 4	poor word. He should have	USED the word filter,
198 2	HIRD: Q. For the record	U.S. 18 is a one page
198 25	that are not authorized in	U.S. 18? A. It looks
199 16	to what we had, there is no	USE putting that figure
200 2	And then if you're going to	USE some plant labor,
200 12	other words, if you look at	U.S. 18 it's a regular
201 13	for cleaning the baffles in	U.S. 18? A. I don't
201 15	In repairing the baffles at	U.S. 18. I made have
203 16	commented on stated that we	USED an air lift in that
204 3	- at some time that pond was	USED -- the pond to the
204 4	south of the refinery was	USED for boiler feed
207 25	A. A fire pump is a pump	USED to pump water into
208 2	Q. Why was a fire pump	USED in connection with
208 7	terminology I would have	USED. But fire pump --
208 11	pump. The pump was also	USED for production.
209 25	I don't know if he would	USE the term road if he
211 12	Excuse me. Can you tell	US again where you are?
213 6	what has been marked as	U.S. 18 (sic) before you
215 18	that an Edens separator was	USING the basic API
217 9	the investigation which is	U.S. 18, soil borings of
224 10	. I don't know what he	USED. But normally what
224 10	. But normally what they	USE they use a pipe.
224 10	normally what they use they	USE a pipe. I've seen
224 13	for load bearing they	USE a pipe and they beat
226 9	soil borings referred to in	U.S. Exhibit 19? A.
227 16	which was provided to	US by Mr. Schwartzbauer
227 18	, can you identify for	US what U.S. 20 is? A.
227 18	you identify for us what	U.S. 20 is? A. U.S.
227 20	us what U.S. 20 is? A.	U.S. what is? Q.
227 21	A. U.S. what is? Q.	U.S. 20. A. Oh, this
228 5	for a work order? A. I	USUALLY receive requests
228 11	attention to page 200978 of	U.S. 20. Mr. White

PG LN	U.S.*	
629 21	says here on page 200978 of	U.S. 20 consistent with
631 14	you are carbon copied on	U.S. 21. Did you
631 15	Did you receive a copy of	U.S. 21 on or about the
631 18	in the opening paragraph of	U.S. 21 to a work order
631 19	the quality of water	USED in the boiler at
632 6	water softner and you	USED internal treatment
633 12	. Q. Well, maybe he	USES a title when he
635 4	is that they're	USED to dealing with the
635 18	streets. Q. When you	USE the phrase "storage
635 19	mean the tanks that were	USED to store the
638 19	them didn't even apply to	US. Q. When was an
639 8	, it is a piece of equipment	USED to eliminate
639 12	series of air scrubbers	USED at the Saint --
640 8	. Q. Would the water	USED in that scrubber be
640 11	. Some of the scrubbers	USED water. Some used
640 11	used water. Some	USED oil. I'm under
640 12	that Mr. Justin's	USED water. Q. If
640 20	HIRD: Q. For the record	U.S. 23 is a two page
641 12	know whether a scrubber was	USED at the plant on or
642 15	equipment was the scrubber	USED in connection with
647 5	277 A. The Army wanted	US to fill out some
650 3	far down until they hit	USABLE foundation for
651 15	. If that's the term you	USE. Q. Privileged
654 12	. I said it did, but it	USED to, but it didn't
655 12	you what safeguards were	USED in order to prevent
657 8	you haven't discussed with	US today and the
658 6	What were vertical tanks	USED for? A. These
658 8	treating plant. They were	USED for the treating
658 10	creosote before it was	USED in the treating
658 15	. He would tell	US what he wanted us to
658 15	tell us what he wanted	US to treat with and how
658 16	with and how he wanted	US to treat it, when he
658 17	to treat it, when he wanted	US to ship it. We
660 1	gallons per minute when you	USE those figures? A.
664 12	I understand it, was never	USED by Reilly Tar, is
664 15	my knowledge it was never	USED. Q. The other
664 17	approximately 1918 and was	USED by Reilly Tar for
664 22	it in conjunction with the	USE of the Republic deep
664 23	Republic deep well was in	USE throughout the
665 4	correct that this well was	USED for condensers, for
665 8	was withdrawn through the	USE of the Republic deep
665 17	Reilly Tar facilities then	USED other water
665 23	. A. Oh, some plants	USED all city water,
665 24	all city water, some plants	USE water from surface
668 16	an air lift pump was in	USE for water production
668 18	. So that means it was in	USE from 1918 to 1955,
669 16	beyond the types of pumps	USED at various points
671 4	some questions about the	USE of a compressor in
671 6	how many compressors were	USED at or near the well

PG LN U.S.*

571 10 I know that an air lift was USED up until -- what

571 17 more than one compressor in USE at any one time?

571 22 a large air compressor was USED for this purpose.

572 11 was the one that was USED. But I can't even

572 14 then which would have been USED in conjunction with

572 20 Q. Now, you mention the USE of a compressor in

572 21 in conjunction with the USE of the air lift pump

573 15 the distribution system for USE into the refinery,

573 18 of withdrawal of water for USE in the refinery, is

574 5 He says that this tank was USED for three years I

574 18 What was the purpose or USE of this tank? A.

574 20 you can store water for USE and have some decent

574 20 pressure. One is to USE an elevated tank and

574 21 and the other one is to USE a hydropneumatic

575 11 terms of how the pump was USED in terms of

575 22 What do you know of the USE of this

575 23 pump after 1958 or why its USE was discontinued in

576 8 , once you discontinued the USE of the

576 19 one. Method two was USING the hydropneumatic

576 22 . Method three is USING the electric pump,

577 11 would be in method one you USE the air lift and in

577 11 and in method three you USE the water-lubricated

578 13 the pond a surge tank was USED, is that correct?

578 19 this, the pump was only USED for make-up water.

579 14 was too high for efficient USE in the box

579 18 temperature they wanted to USE, to my recollection

580 15 they're going full blast is USUALLY 6 pounds. And

586 6 of a pan and the water USED in the box

588 19 the pond. Q. Was water USED in conjunction with

588 23 and production of water for USE in the refinery.

588 25 the production of water for USE in the retort area.

589 1 whether the compressor in USE at or in conjunction

589 2 Republic deep well was ever USED in conjunction with

589 12 What would have been the USE of water in this

589 15 ? Wherever else water was USED. Where was it

589 15 was used. Where was it USED? There were no

589 17 of. Of course, it was USED in the boiler house

589 19 or adjacent to it. It was USED for boiler water.

589 20 water. What else was it USED for? I can't

589 22 you said that water was USED at the retort area

590 13 as the condenser that was USED to provide water

590 23 the Reilly site, the water USED in the retort area

591 11 production in relation to USE in the retorts, the

591 25 condensers to the pond was USED to go to the

592 5 box condensers avoiding the USE of the pond, there

592 6 retort area avoiding the USE of the pond? A.

592 24 the air line the phrase you USED for that? A.

593 22 step where a condenser was USED. A. To my

595 14 were air cylinders that USED that compressed air

PG LN U.S.*

695 25 from the retort area USED in the course of

697 12 The compressor that was USED in conjunction with

697 14 Republic deep well was not USED exclusively for

697 16 Q. What were its other USES? A. Agitating

698 1 . Where else would it be USED? I don't know

698 2 know where else it would be USED. Q. The

698 3 . Q. The conveyors were USED in the adzing and

698 8 were the retorts' pressure USED? A. They had a

698 25 then, the compressor USED in conjunction with

699 1 Republic deep well was not USED to pressurize the

699 6 compressors were sometimes USED also for unloading

699 20 A. You mean that air was USED for lifting pitch

699 24 trucks? I know that they USED -- they had a lot

600 1 trucks were loaded. Some USED a pump. Some used

600 1 . Some used a pump. Some USED a tank. They put

600 9 the same air compressor USED in the production

600 11 Republic deep well was also USED for the purpose of

601 17 that you just referred US to on the map, this

603 12 be putting air -- if they USED a pressure tank to

603 21 line was connected -- if we USED that system, and I

604 1 , if a pneumatic tank was USED, the air went into

606 11 and Documentation USED in Report and

610 13 to the quality of water USED in the course of

612 17 said in the water that was USED to service the

613 19 of tar in the water supply USED for the boilers

614 18 tar in the water supply USED by the boilers that

619 5 -- the term that management USED, not the plant

619 6 , boiler operators liked to USE was puke. So I

623 2 treatment which they USED at that time or the

623 19 you could identify it for US. I'm showing you a

624 10 pump that was installed and USED from the

625 25 it ever did? A. You USUALLY hear about

627 13 have been produced to US? MR.

627 21 and provide them to US. So we still have

627 25 that would be important to US if you could do that.

628 16 will do what you just asked US to do and we will

PG LN WEIR*

49 20 an easy thing to do with a WEIR, you know. A lot

49 21 How do you do it with a WEIR? I apologize.

49 24 A. Run the water over the WEIR and then you

49 25 of the water over the WEIR and that tells you

50 3 Did Mr. Horner design the WEIR? A. I don't

50 4 don't know who designed the WEIR. I know I

50 6 that Mr. Horner designed a WEIR at that time. I

80 17 it's admitted over a WEIR so you don't need a

80 18 baffle. Actually the WEIR is its own stilling

80 21 -- A. No. This is a WEIR going clear across

PG	LN	WEIR*	
80	23	inch deep going over the	WEIR depending on the
87	25	you see the baffle outflow,	WEIR outfall, weir is
87	25	outflow, weir outfall,	WEIR is what determines
88	4	down. Now, this outfall	WEIR what it does -- the
88	6	on how high you set that	WEIR. It also depends
88	9	of an inch flowing over the	WEIR and at very high
88	11	one inch flowing over the	WEIR. It's a great big
88	11	the weir. It's a great big	WEIR which is -- well,
88	13	? Eleven feet wide. That	WEIR would be eleven
91	14	of measuring it. We had	WEIRS. We had sumps.
117	1	filter also contained a	WEIR which measured the
119	14	they measured through the	WEIR that you had
119	17	these were measured by the	WEIR or by the sump pump
120	9	it I'm sure either used a	WEIR or he could use the

PG	LN	WHITE*	
32	8	can't remember. Q. Paul	WHITE? A. No. It
32	9	No. It was before Paul	WHITE I believe. I
130	10	they did is they put the	WHITE ties in the
193	10	see. Okay. A. By Mr.	WHITE who was the plant
203	2	out there where they stored	WHITE ties, nothing to
203	24	clean. It was just	WHITE. I couldn't
137	5	stationery from P. E.	WHITE to T. E. Reilly
137	10	did. Q. Who was Mr.	WHITE, the author of
137	12	States 16? A. Mr.	WHITE was the plant
137	14	of United States 16 Mr.	WHITE refers to a pump
137	16	water. What pump is Mr.	WHITE referring to? A.
138	8	understand the document Mr.	WHITE is referring first
139	16	sentence referring to Mr.	WHITE'S interest in
140	20	document do you recall Mr.	WHITE'S request for a
142	24	whether the pump that Mr.	WHITE requested was ever
143	18	be a memorandum from P. E.	WHITE to R. J. Boyle on
150	15	he was replaced by Mr. Paul	WHITE. Q. When did
150	16	. Q. When did Mr. Paul	WHITE start at Saint
150	21	the piping and Mr.	WHITE be assigned that
150	22	so because he says, "Mr.	WHITE has now become
151	20	. I believe maybe Mr.	WHITE handled it. I
179	4	It was written to Mr.	WHITE, wasn't it?
179	24	engineer was Mr. P. E.	WHITE could handle it,
184	5	I didn't write this. Mr.	WHITE wrote it. It's a
184	16	Yes. Q. I believe Mr.	WHITE refers there to
190	2	that figure came from Paul	WHITE. It had to. Q.
191	8	request is coming from Paul	WHITE. He made this
191	11	of his own. Q. But Mr.	WHITE does say that the
198	12	that was suggested in Mr.	WHITE'S memo of May 20,
198	18	the ones proposed by Mr.	WHITE in State Exhibit
198	19	23? A. Well, Mr.	WHITE asked for \$4,043.
198	24	there any items that Mr.	WHITE recommended in

PG LN	WHITE*	
501 8	is what he did. Mr.	WHITE wrote it that way
527 25	work order written by Paul	WHITE for the Saint
528 11	200978 of U.S. 20. Mr.	WHITE there refers to
528 14	tanks. Q. Did Mr.	WHITE ever discuss with
528 17	A. I don't remember Mr.	WHITE discussing it with
529 20	. Q. Is what Mr.	WHITE says here on page
530 23	at the time, is Mr.	WHITE'S statement
540 6	probably right after Mr.	WHITE left. This is